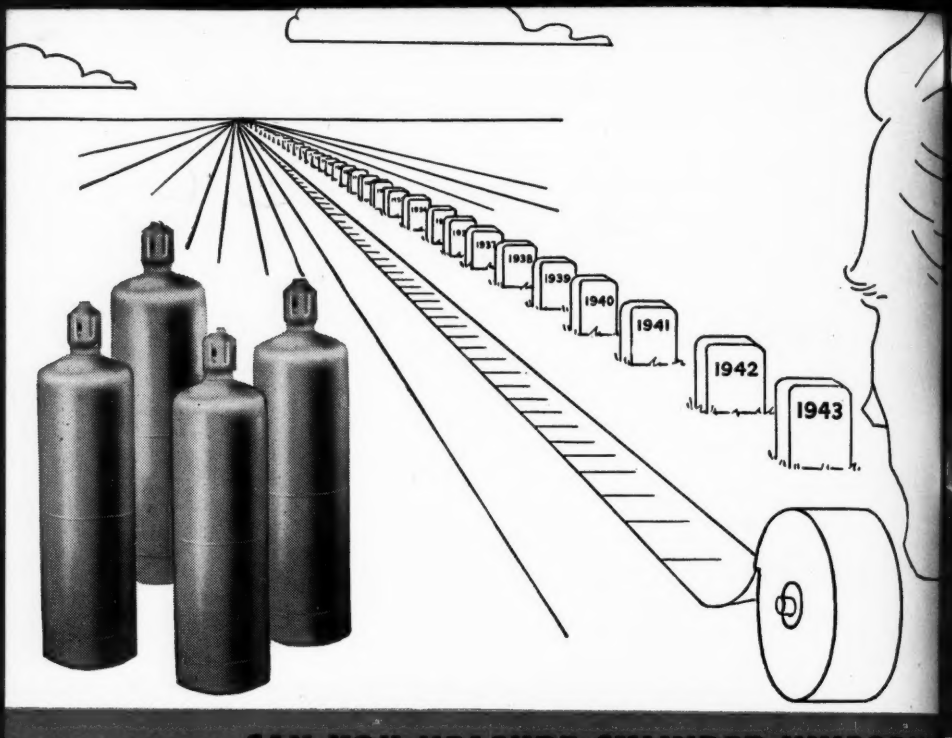
BUTANE-PROPANE NEWS

Technology
THE RECOGNIZED
AUTHORITY OF THE
LP-GAS
INDUSTRY



CAN YOU MEASURE CYLINDER UNIFORMI
IN YEARS OF EXTRA SERVIC

THE ability of Hackney lightweight L-P Gas Cylinders to meet the requirements set for them and, then, to continue giving extra service, is due in no small part to their uniform size, weight, strength and capacity. Extra service is designed into them by Hackney engineers. And it is maintained by Pressed Steel Tank Company's more than 40 years of volume production experience.

Starting with the chemical and metallurgical research that is used in the testing of material, and continued by the mod heat-treating and quality control equipme uniformity is assured in every manufactur step, from raw material to finished prod

War products demand Hackney's time day. But as soon as the need for these pr ucts becomes less critical—and more terial is released for civilian requireme Pressed Steel Tank Company plans to make products available to all industry.

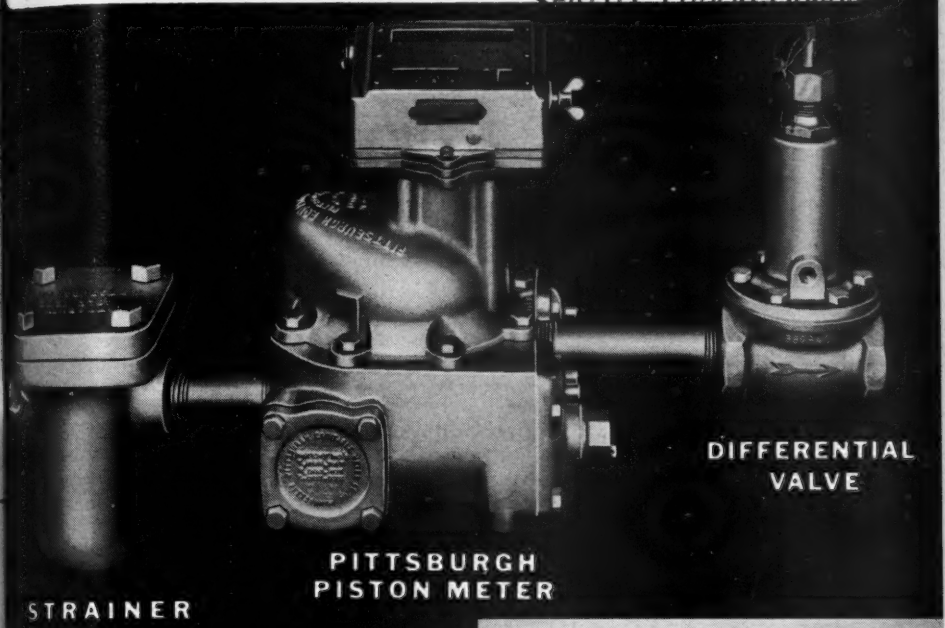
Pressed Steel Tank Company

GENERAL OFFICES AND FACTORY · 1487 SOUTH 66th STREET

Milwaukee 14, Wisconsin

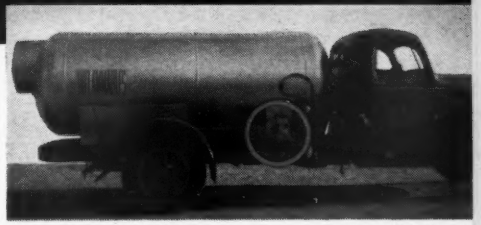
CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

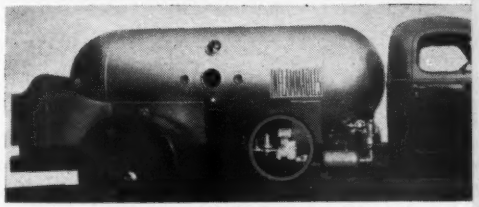
A REAL L.P.G. TRUCK METERING UNIT



PITTSBURGH PISTON METERS
DO THE TRICK
ECONOMICALLY, DEPENDABLY

Measurement of L. P. G. by meter is the only method that protects both buyer and seller alike. Hundreds of distributors are relying on the convenience and accuracy of Pittsburgh Piston Meters to handle the dispensing of this fuel from pressure sealed tank trucks. An economical unit to buy, install, and maintain this meter will frequently pay for itself in savings over a few months' time. Let our measurement engineering department advise you on your next L. P. G. installation.



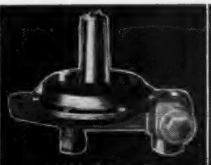


PITTSBURGH EQUITABLE METER CO.

Atlanta Brooklyn Chicago New York — **MERCO NORDSTROM VALVE CO.** Main Offices, PITTSBURGH, PA. Columbia Houston Kansas City Pittsburgh San Francisco — Boston Buffalo Los Angeles Seattle Tulsa

National Meter Division, Brooklyn, N. Y.

EMCO Large Capacity Pressed Steel Gas Meter



EMCO Type B Ejector Service Regulator

ROTOCYCLE Meter for Liquid Butane - Propane

NORDSTROM Lubricated Plug Valve

BUTANE-PROPANE News

Reg. U. S. Pat. Off.

Contents for June, 1944

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LETTERS

Gentlemen:

I have just read the article in the April issue of BUTANE-PROPANE *News*, regarding our University of California Department of Education gas appliance sales training course. I have been very much interested in looking through your magazine.

Evidently you have a very wide circulation throughout the United States judging from the territory from which we have been receiving orders for the sales training course. There undoubtedly will be a great deal of interest in sales training at the conclusion of the war. The organizations which are making preparations at this time will be in on the ground floor.

The orders received thus far have practically exhausted our reserve supply. We have still available only three complete mimeographed sets which we will be glad to furnish to any firms or organizations interested.

H. M. Blowers
Regional Supervisor
Distributive Education
Berkeley, California

We appreciate the cooperation of your office very much, and if you have other material at a later date that would be of interest to our industry, we certainly would welcome the opportunity to publicize it.—Ed.

•

Gentlemen:

What I would like to find, if it is in existence, is a history of the production and distribution of propane and butane, and some statement as to the total national distribution, perhaps with a breakdown showing the part played by each of the major distributing companies. Anything I could get indicating the market potential would also be very helpful.

W.F.
Illinois

There was delivered a paper at the Natural Gasoline Association Convention in Dallas in April treating of supply of liquefied petroleum gas now and after the war and outlining certain definite trends in regard to higher pressure vessels and a larger consumption of propane. I think this article would be of interest to you and I am enclosing tear sheets of it as published in our May issue of BUTANE-PROPANE *News*.

In this, our June issue, you will find an article which reviews the progress of the industry for the last several years and outlines something of the potentiality of growth.—Ed.

•

Gentlemen:

In the "Letters" section of BUTANE-PROPANE *News* for May you publish a letter from "M.G.A.", Alabama, inquiring for information concerning the use of a gas fired steam boiler for heat exchanging purposes in a butane-air plant.

We have been using a 5-hp. boiler for this purpose for the past two years, displacing a hot water heat exchanger formerly used. We have had very excellent results in a heat exchanger of our own design installed in such a way that we do not have a return condensate system, returning water by gravity, through the use of large sections in return line and check valves to create low pressure areas in the return line.

In case your correspondent would be interested in our experiences you may refer our letter to him and would

be glad to correspond with him direct to answer any questions he might wish to ask.

We read BUTANE-PROPANE *News* regularly and find it of so much value that we would not be without it. Please accept our thanks for so much interesting and helpful information.

J. A. Moore

Gas Appliance Company
Coquille, Oregon

A copy of your letter has been forwarded to "M.G.A." Thanks for your interest and expressions of approval of BUTANE-PROPANE *News*.—Ed.

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Gentlemen:

I have been one of your readers for a number of years and enjoy your magazine a great deal. You may rest assured that I will continue to read your magazine as long as I am connected with the bottled gas business.

We have a large trucking company using butane for motor fuel and they would like to use the gas for refrigeration also. Could you give us some information regarding the use of butane for refrigeration and also using the same fuel with Algas equipment for running the trucks. This company has been experimenting with different types of coils and they can do a good job of refrigerating but they cannot get enough pressure to run the converter.

R.R.W.

Minnesota

The use of butane for refrigeration purposes on trucks which burn butane for fuel is feasible and practical under what might be called ideal conditions, but difficulties confront the engineers in desgning equipment for this dual use of the fuel on trucks operating under average conditions.

The usual trouble is that the average truck delivery and pick-up stops occur too frequently. At such times when the engine is not using any, or much fuel, the refrigeration process decreases. On long, uninterrupted runs, ample refrigeration is possible. Theoretically, if the area of the cooling coil is reduced sufficiently, thereby requiring less refrigeration, it will be possible to strike a balance between it and the required pressure to operate the engine.

Mechanically, pressure must be held back on the coils so that there is sufficient pressure left to operate the carburetor—which reflects directly on the refrigeration capacity. Usually, it means sacrificing one for the other.

I suggest that you write the American Liquid Gas Corp., 1109 Santa Fe Avenue, Los Angeles, Calif., for any information they may be able to give you. That is the firm that makes the "Algas" carburetor.—Ed.

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Gentlemen:

We received one of your WPB calculators and it is O.K. We would like now to obtain a simple table of wire gage drills and the Btu. of heat an orifice drilled with each one would pass, using a mixture of 70% normal butane and 30% propane. This at the almost universally used pressure of 6 oz. or 10.2 in. water column.

E.B.

Texas

Upon pages 197 and 198 of the Handbook BUTANE-PROPANE Gases will be found drawings and tables which almost exactly answer your questions. The only difference is that a mixture of 65% butane and 35% propane is used instead of the 70-30 mix that you refer to, and you can readily recalculate for your own conditions.—Ed.

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Gentlemen:

If possible, will you please provide us with a complete list of liquefied petroleum gas manufacturers.

F. E.

Indiana

The U. S. Bureau of Mines publishes annually a list of producers of liquefied petroleum gases and I suggest you write to the Bureau of Mines for their latest list. There will be another one out during June or July. —Ed.

• **BUTANE-PROPANE *News* welcomes letters from our readers, but it must be understood that this magazine does not necessarily concur in opinions expressed.—Editor.**

WOODWARD MARTIN
Guest Editor for June

An Appreciation

By WOODWARD MARTIN*

Manager, Stargas Department, Lone Star Gas Co., Dallas, Texas

THANKS A MILION to you of the BUTANE-PROPANE *News* Staff on the Fifth Anniversary of your publication.

Like a young fruit tree, your publication was planted in the LP-Gas field five years ago and extended its root structure, assimilated nutritious elements from the field and produced fruit in the form of monthly editions to help to better sustain those who worked in the field.

Thanks—for the information that you have brought to us each month that has helped us to know how to do a better job of providing LP-Gas services to the public;

—for news about our old friends in the industry;

—for up-to-date news about new things, new methods and new people in our business;

—for helping us to be better posted in these turbulent war times.

Thanks for the past sixty editions of BUTANE-PROPANE *News* and for the timely publication of the three Editions of your *Handbook* BUTANE-PROPANE *Gases*. Few, if any, industries have had as complete and up-to-date technical and operating information to guide them in their early stages of development as has the LP-Gas industry with its BUTANE-PROPANE *Handbook*.

May the future bring more abundant harvests, is our not entirely unselfish wish.

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* In the first issue of BUTANE-PROPANE *News*, June 1939, Mr. Martin, then president of the Liquefied Petroleum Gas Association, appeared as our first guest editor. We thought it particularly appropriate to invite him to serve again at the end of five years.—Editor.

MAINLY BEYOND THE MAINS

By ELLIOTT TAYLOR, Washington Editor

Finding Facts

A PAW-inspired survey now in the works and scheduled to be completed by June 1st — which it won't be by at least 60 days in our opinion – shows promise of being more than a little useful to avert local disruption of butane and propane service next winter.

ELLIOTT TAYLOR

A joint survey committee, composed of representatives from four PAW districts has sent out questionnaires to manufacturers and marketers of LP-Gas, with questions designed to show the actual production and distribution of gas for 1943 and 1944 to date, and the estimated production and estimated demand from now until July 1, 1945. Characteristically it is not going to be necessary to make the current survey in PAW District 5, as the information is already available from California, the principal producing state of the district.

The tabulations will presumably show a more complete picture of LP-Gas on a national scale than any that has been assembled so far. It will differ from the Bureau of Mines annual report in that it will show not only the actual past, but the anticipated future, production; and, also, it will reveal a complete picture of the volume required for the industrial uses to which the fuel is being put, with an inventory of commitments for future deliveries that have been made by manufacturers.

Since the PAW is able from government sources to obtain all of the figures that represent the actual known demand for synthetic rubber, aviation gasoline and war chemical purposes, it seems feasible, at least, thus to coordinate all of the potential demand and reduce it to terms of the transportation equipment that will be required to lay it down where, when and as needed.

It is well to remember, too, that the days when a certain limited amount of industry expansion again can be enjoyed may not be too far in the future. If, as we have been assured from time to time, transportation is the only bottleneck in the distribution of an ever-increasing supply of LP-Gas, and if, as now is admitted, steel

is becoming more available for the construction of tank cars, these two favorable factors should add up to an early relaxation of some of the restrictions under which the industry has staggered for the past two and a half years.

We believe that our semi-permanent war economy has now progressed to the place where the release of goods and materials for civilian consumption can be submitted to statistical consideration, and if there is anything left over after war needs, that much should be made available to the needy public now. But any industry that feels that it has a surplus of materials that could and should be released is under an obligation to produce the factual information that will buttress its claim.

Once the results of the current LP-Gas inquiry are totalled it will be a comparatively simple matter for the PAW to: (1) Advise the industry to what extent a resumption of its interrupted expansion may be permitted, or (2) advise the industry in terms of gallons of butane and propane, why its expansion program must continue to be deferred.

In Union

The city gas utilities having spent the better part of two years worrying out loud about the terrific electrical competition they will have to face after the war is over, are at the present time on the verge of doing something about it from an advertising standpoint. The principal organized advertising effort of this group and the only one on a national scale, is that carried on through the American Gas Association. Its advertising budget of approximately a half-million dollars a year is now recognized by all industry leaders as wholly inadequate, and there are new indications that an advertising and promotion plan running as high as three million dollars a year may be undertaken.

This would be wonderful news for the LP-Gas industry, were it not for the fact that AGA advertising has consistently ignored liquefied petroleum gas; and unless something is done about it, will probably continue to ignore it. The main reason for this attitude is the fact that the combination gas and electrical companies, and many of the straight manufactured gas companies are afraid of LP-Gas competition.

Combination companies, of course, realize that LP-Gas is going to give them a terrific run for the rural cooking load which they have been uneconomically trying to promote on 2 to 2½-cent electricity. And while they generally admit that gas is a superior fuel in those communities where they have the gas franchise, they aren't above clipping their electrical

customers for high priced cooking and water heating in the outlying areas if they can keep them ignorant of the advantages of butane or propane for domestic fuel purposes.

As far as manufactured gas companies are concerned, they have little to fear unless their manufacturing costs are so high that they can't compete with LP-Gas, in which case the answer is to switch over to butane-air or propane, whichever is the most economical for their consumers.

A few years ago a tentative offer was made by the LPGA to the AGA whereby the former would pay a small contribution toward the total cost of the national advertising campaign if a line could be added at the bottom of each advertisement to the effect that "beyond the city mains you may still enjoy gas as service through the use of LP-Gas." This modest, this almost timid statement of the bare fact that LP-Gas exists was rejected with shrieks of pain and rage by the multi-million dollar gas utilities, so the advertising committee of the AGA quickly dropped the subject which ended the whole matter from that time up until now.

Of course as an outsider looking in, the LPGA cannot expect to dictate to, or even presume to make suggestions to the advertising and promotion committees of the American Gas Association. But the avenue is now open whereby LP-Gas may become identified with AGA through affiliation with its newly organized Natural Gas Department. The natural gas side of the utility industry has never looked on LP-Gas as a competitor, and it may be expected that the natural gas department will champion the cause of an LP-Gas Association request for affiliation privileges.

Under such an affiliation there would be no reason why the LPGA should lose its identity if the members desired to retain their independent association.

The advantages to be gained are so universal to all sides that it would be a nice question to weigh who would benefit the more. For LP-Gas to have made available to its promotion the benefits of participation in millions of dollars worth of gas advertising would be a tremendous boost for the industry at a time in its history when it will need it most.

City gas, on the other hand, would have the chance to ally itself with a young and vigorous industry that is taking the fight right into the heart of the territory now coveted by the postwar electrical competition, the fringe and the rural areas beyond the gas mains. In the face of the obvious advantages to both, we cannot see how either side can refrain from being the first to make affiliation overtures.

LP-Gas Has Become Major Industry

1939 - - IN FIVE YEARS - - *1944*

Since First Issue of *Butane-Propane News*

FIVE years! That is a short space of time by which to measure an industry, but during the last five years use of liquefied petroleum gas has spread so phenomenally throughout the United States that one might say, in truth, it represents almost the total growth.

This five-year period also covers the birth and growth of BUTANE-PROPANE News. Initially appearing in June, 1939, it is hoped this magazine in the past 60 issues has contributed its fair share toward making the industry what it is today.

Times and sales methods have varied, changes have come to personnel, but the high virtues of the all-purpose fuel, the adherence to good safety practices and the standards of a good-intentioned industry have developed a character to that industry that competition has been unable to meet or break down.

Figures tell a brilliant story. While only the five-year period of 1939 to 1943, inclusive, is being reviewed, Table I goes back to 1922 to provide a long range view.

The first issues of BUTANE-PROPANE *News* report the LP-Gas marketed production figures for the previous year, 1938, as 165,201,000 gals. These were distributed among approximately 350,000 users. The 1939 report of the U. S. Bureau of Mines recorded 223,580,000 gals. sold, and an estimate of customers brought the total up to 500,000. Most applications were in rural homes and, in the earlier years, for cooking, primarily. Today, in addition to the customary range, there is a strong demand for water heaters, refrigerators and space heaters to be sold at the time of the original installation. Farmers are pumping their water and powering their tractors and trucks with the fuel. Commercial establishments are taking out their other equipment to get the high advantages of LP-Gas. In industry it is a powerful competitor for innumerable uses.

What Will the Future Be?

If an infant industry can make the showing it has in the past half-decade, what will the next five years bring?

In 1943, when estimated consumption topped 701,000,000 gals., the most conservative estimates record 2,000,000 consumers of LP-Gas! That is an average annual increase of 300,000 new accounts.

TABLE 1. MARKETED PRODUCTION OF LIQUEFIED PETROLEUM GAS

Year	Total Sales: Gallons Per Year	Total Sales: Per Cent Increase Over Previous Year	Distribution—Gallons Per Year: Domestic	Domestic: Per Cent Increase Over Previous Year	Industrial and Miscellaneous	Industrial and Miscellaneous: Per Cent Increase Over Previous Year	Gas Manufacturing	Gas Manufacturing: Per Cent Increase Over Previous Year
1922	222,641	....						
1923	276,863	24.4						
1924	376,488	36.0	Sale of liquefied petroleum gas confined primarily to bottled gas business prior to 1928.					
1925	403,674	7.2						
1926	465,085	15.2						
1927	1,091,005	134.6						
1928	4,522,899	314.6	2,600,000	....	400,000	....	1,500,000	...
1929	9,930,964	119.6	5,900,000	126.9	1,500,000	275.0	2,500,000	66.7
1930	18,017,347	81.4	11,800,000	100.0	2,200,000	46.7	4,000,000	60.0
1931	28,769,576	59.7	15,294,648	29.6	7,171,686	226.0	6,303,242	57.6
1932	34,114,767	18.6	16,244,103	6.2	8,167,194	13.9	9,703,470	53.9
1933	38,931,008	14.1	16,625,588	2.3	13,987,095	71.3	8,318,325	-14.3
1934	56,427,000	44.9	17,681,000	6.3	32,448,000	132.0	6,298,000	-24.3
1935	76,855,000	36.2	21,380,000	20.9	47,894,000	47.6	7,581,000	20.4
1936	106,652,000	38.8	30,014,000	40.4	67,267,000	40.5	9,371,000	23.6
1937	141,400,000	32.7	40,823,000	36.0	89,402,000	32.9	11,175,000	19.3
1938	165,201,000	16.7	57,832,000	41.7	94,983,000	6.2	12,386,000	10.8
1939	223,580,000	35.3	87,530,000	51.3	120,615,000	27.0	15,435,000	24.6
1940	313,456,000	40.2	134,018,000	53.1	159,153,000	32.0	20,285,000	31.4
1941	462,852,000	47.7	220,722,000	65.0	216,875,000	35.8	25,255,000	24.4
1942	585,440,000	26.5	299,559,000	36.0	201,477,000*	16.7*	31,366,000	24.0
1943	701,999,000†	19.9	350,000,000	17.0	246,000,000	22.5	39,000,000	24.0

* Not including 52,904,000 gal. used for chemical manufacturing.

†Estimated for 1943. This figure includes an estimated 69,999,000 gals. for chemical manufacture in addition to totals for domestic, industrial and miscellaneous, and gas manufacture. Revised figures for 1943 will be available from the U. S. Bureau of Mines within 60 days.

But, because of the interruption of the war, which practically stopped new installations for the last two years, the "normal" years show better than a half-million new customers per year. There is little doubt that this pace will be resumed upon the lifting of current restrictions.

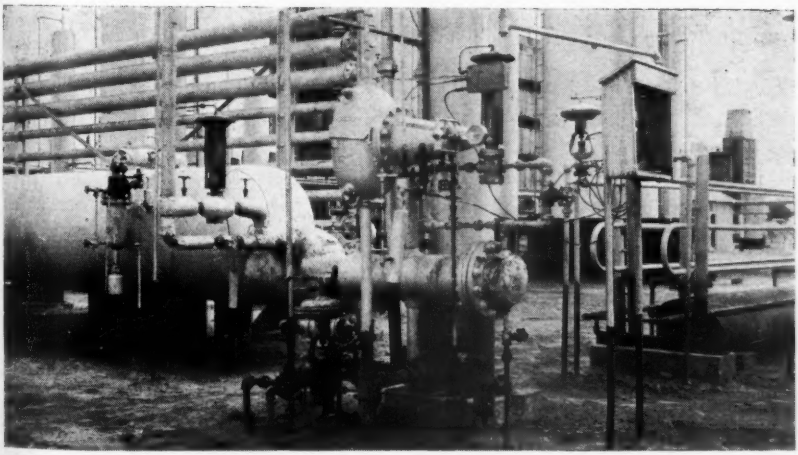
In short, liquefied petroleum gas today is recognized as the best fuel on the market, barring none, and it need not fear to make its bid for almost any job where heat is used. From the hesitant, uncertain position of five years ago, that is real development.

The trend shown in Table 1 is unmistakable. And it is reasonable to expect a return to active expansion in the very near future. The government, by orders already issued, and proposed orders, seems anxious to open the doors to a renewal of appliance and equipment production.

There is an enormous restrained desire on the public's part for modernized facilities, of which the most important are those used for cooking, water heating, refrigeration and house heating.

It is said the national annual income at the close of the war will be 125 billion dollars. In itself, this will guarantee a high sales volume and better prices. A national authority states that the replacement demand for cooking ranges, including gas, electric, coal and wood for the period 1942 to 1950 is estimated at 17½ million units. New markets should provide an additional 4 million units. There are believed to be in excess of 10 million American homes still without modern fuels.

According to the U. S. Bureau of Mines, census figures show that 80% of the nation's farmers still use wood for cooking. Everyone of them is a legitimate prospect for the LP-Gas dealer!



Base of LP-Gas fractionator with reboiler and controlling instruments.

Summer Storage = Winter Supply

By A. N. KERR
President, Imperial Gas Company, Los Angeles

NO SUBJECTS are more important to LP-Gas men today than supply and price of product. Present shortages are war-born. But with expected industry expansion after the war, what can the dealer expect?

In the accompanying article Mr. Kerr, who is credited with having "discovered" butane in 1910, draws upon his long experience in the LP-Gas and gasoline fields and upon current consumption figures in prophesying the future demand. He explains how price is governed by shortage or excess of supply. He shows how adequate storage will solve both problems. And he has an interesting plan whereby producers can create that storage economically.—Editor.

THE past may throw light upon the future.

The liquefied petroleum gas industry is in the same relative position as the casing-head business in 1913. Gasoline plants had been built so rapidly then that our casing-head gasoline was busy cutting trade channels into new markets. Low price provided the pressure device which sent our 86-degree gasoline flowing east and west. The market in 1913 was about 3c; five years later it was 20c.

A. N. KERR

LP-Gas, also, has been busy cutting trade channels by means of very low prices. Up until this time there has been plenty of the product. Distributors have been selling it without much thought for the future.

The price of a product is usually determined by the demand rather than the cost of manufacture. Large Midwest plants have operated on 1c per gallon gasoline, so that the cost of manufacture, itself, is not high, provided someone supplies the gas. There have been large surplus supplies of LP-Gas, so that the law of supply and demand has not been stressed.

Yes, our gas has been busy finding ways to market by means of a low price. During the last three years, supply has just begun to be overbalanced by demand during the three winter months. Different trade channels are beginning to pull heavily on the supply during the winter quarter. In fact, they drain it dry. If we were to be "unfrozen," the winter wholesale price would rise, slowing the flow in the low-priced channels and allowing those who have a greater need for the product to secure enough for their requirements. During this short period we are beginning to see competition for the product within the industry, itself.

The same thing happened to casing-head during the years 1917-1921. Although no butane was then produced separately, it had a blending value of 30c per gallon, because it had a Baume value of 108. By that time the refiners had found it useful for raising the gravity and adding volatility.

During war time practically everything assumes a new and higher value. We find it very interesting to estimate what will happen to LP-Gas when, for the first time, supply and demand react upon each other through price.

Expansion! Obviously, we can not go on expanding at the rate of approximately one-third each year. The increase is one third of *last year's sales.* A mathematical function of this kind is like squares of numbers. They finally grow enormous. When we are "unfrozen" we should grow even faster than one-third for some years. Contemplate the next five years.

1943	700,000,000	Gallons
1944	930,000,000	"
1945	1,250,000,000	"
1946	1,660,000,000	"
1947	2,270,000,000	"
1948	2,958,000,000	"
1949	3,950,000,000	"
1950	5,260,000,000	"

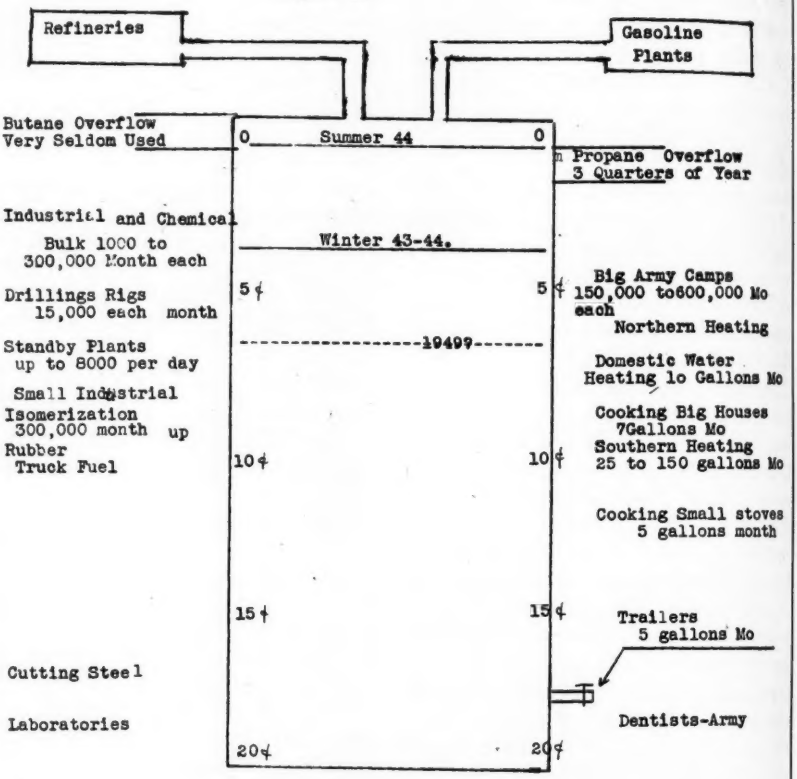
To 1949 there would be added 1,310,000,000 gallons, or twice our present size. No difference what the supply may be, we can rest assured that our demand will later catch up with it and draw it down until it hurts. The era of competition with other fuels will come. Competition for the product will also come about. Fortunately, there seems to be enough gas for the really useful things such as gas service. Much of all gas is wasted as it is used. By utilizing it more scientifically about the same satisfaction can be had on considerably less gas.

Of course the war has thrown an extra load upon us. Some of these are upset or troublesome loads. Army camps, winter space heating due to lack of appliances for oil and coal, standby plants due to war industries, are upset loads. They all come at once in the winter.

Uniform Loads. Uniform loads more easily borne are drilling rigs, water pumping for irrigation, farm tractors. Largest of all is isomerization through which n-butane is changed to isobutane and thence to aviation fuel. Twenty-six of these plants are being set to work in our refineries this year. Aviation gasoline is 12c to 17c. This gasoline is demanded by the government and there is no limit put upon the price. It is the major demand made upon butane. Rubber demand is very much smaller.

Balance of Supply and Demand. The experts agree that we will be compelled to do some balancing of supply and demand during the winter quarter until such time as the war "breaks." Should we win against Germany then for a couple of years we may have plenty of butane and propane. Later we will use up all this excess through our one-third yearly increase, and then we will be juggling with supply and demand again. But there are many things we can do to help our-

Figure 1.



Insert a tapping at price point you estimate would definately slow business for each product use as for trailers.
Price to be distributors plants- wholesale price delivered to plant.
Draw level of supply in tank for future years as shown for 1949.

selves. We can produce more propane. We only take out a part of it now. All the butane comes out, but a good deal more absorbent oil must be circulated to bring down the propane. This extra will cost about twice as much. And then we can store the products. That will cost something, too.

Figure 1 is an attempt to stimulate thought. Draw a similar sketch and place all the various

demands upon it in the place they should be. Survey your local conditions. They may be very different. The chart reflects California.

From a survey of the chart we conclude that we are a varied and changing industry. Apparently a great deal of gas is going into temporary, large channels. It is surprising that so much of the gas flows into channels which depend for their existence on present, low-frozen prices.

We have placed the various users approximately opposite the place where a tapping would draw off liquid. You can locate these tappings in accordance with your own conditions, prices, costs etc. The tapping should be located at that point where *price would seriously hamper* the business. Thus you will then see a liquid static view of the balance between supply and demand.

Upset Loads. The immediate problem in Texas, Southern states and California seems to be the winter season. As an illustration, we are told that the amount of "upset" due to winter loads is.

1.5 to 1 California
2.0 to 1 Arizona
4.0 to 1 Panhandle, Texas

The gasoline plants do make more liquid in winter than summer but 25% more would be a fair estimate. The upset loads are almost all due to space heating. When we had extra gas for this heating it was not so bad but now it appears this space heating is the most expensive gas we sell, and that the gas, itself, will cost us the most. Storage for the gas costs 30c to 60c per gallon, depending on size and location. If we add 5c per gal. yearly for storage, add in an extra truck and man here and there, we find the costs too high.

Insulated Storage at −45° F. for Propane. Some one must store gas if we are to heat with it. The real need in California is for propane in cold weather. It is required to give heavy butane power to boil under load. More propane can be mixed in and this increases the amount of butane sufficiently to carry the load. There is a great shortage in mid-winter. As we have said, not only is more gas required, but better gas! In our own case, it is only that we need more gas. We have changed entirely to propane. However, the great bulk of the load is still carried by butane, 30-70 in summer and as high as 60-40 in winter. (First figures for propane.)

Even Propane Might Be Stored

We have estimated cost of storing propane under no pressure, under 50 lbs., and 160 lbs., with some refrigeration, and in the usual 250 lbs. storage, and at the present time storing gas for space heating seems to be uneconomic except for large insulated tanks under no pressure. There is a decided possibility that propane can be stored in these large tanks and resold at a profit, even for space heating.

We are not breaking entirely new ground when we make this statement. During the last war, we built such a tank at Eram, Okla. In it was stored a rough sort of butane, which boiled at 0°. The tank is shown in the drawing. (Figure 2.)

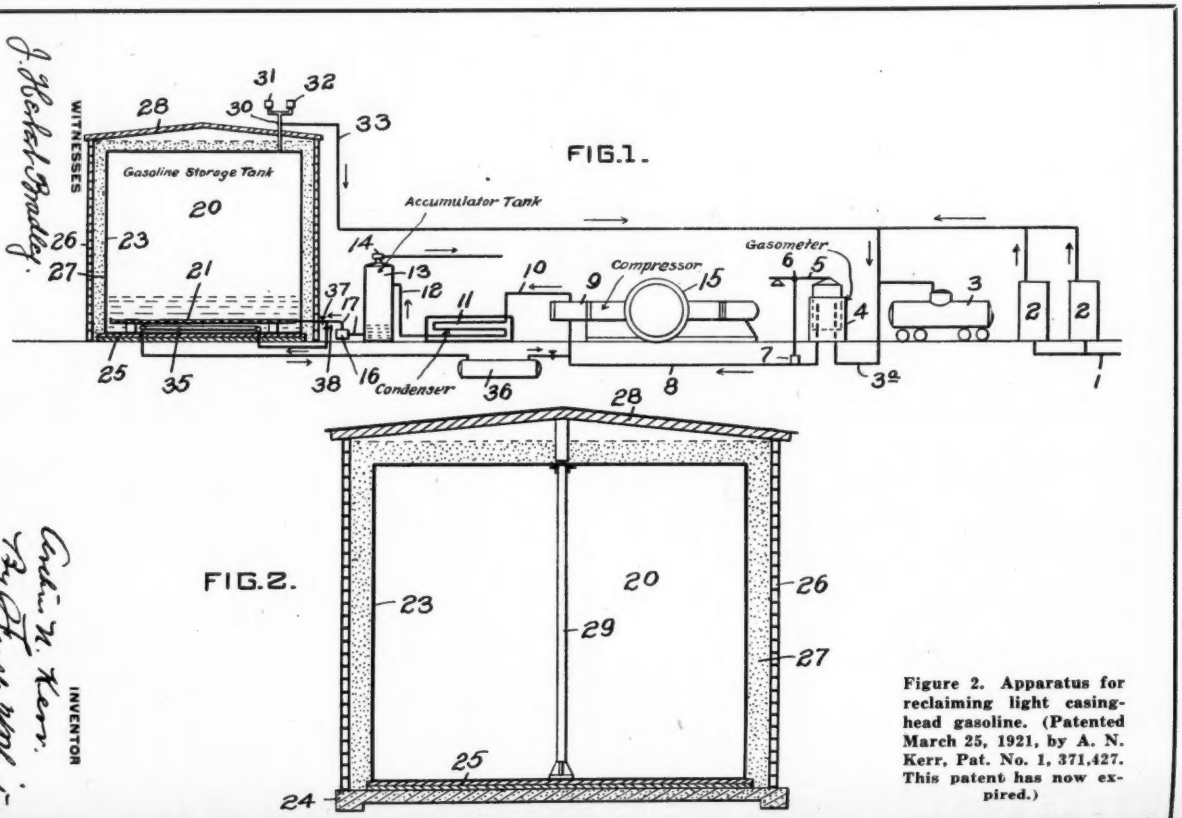


Figure 2. Apparatus for reclaiming light casing-head gasoline. (Patented March 25, 1921, by A. N. Kerr, Pat. No. 1,371,427. This patent has now expired.)

its capacity was 4000 bbls. The tank was set upon 8 in. of sheet cork and surrounded by 2 ft. of ground cork. The outside wall was hollow tile, such as is used for silos. The tank cost $7500. The insulation cost an equal amount. The temperature in the summer time in Eram is high.

Big Saving in Short Time

You will notice that the compressor picked up waste gases which were escaping into the air and liquefied these, together with the gas coming from the storage tank. Thus, 110,000 gallons were recovered during the summer season.

When first the storing of propane in this manner is proposed, many persons doubt that it can be done. They need only to refer to the storing of natural gas in Cleveland, Ohio, in a liquid state. It boils at a very much lower temperature than propane. The amount of boiling is entirely governed by the heat which leaks through from the outside. A 15,000-bbl. tank will boil off only about 50 gallons of gas per hour. This is only about 40 feet of gas per minute, and this can be handled by a very small compressor. Most gasoline plants have extra suction capacity which will care for this small amount of gas.

Low Cost Installation. We estimate that the cheapest form of insulated storage would consist of an oil tank designed for crude oil. The height would be the same as the diameter, as this gives the least surface. A light steel shell surrounds the oil tank. A mineral cork or insulation is dropped between the shell and the tank. The weight of the insulation is only 5 lbs. per cu. ft., or about 1/12th that of water. Cement can be mixed with the insulation so that the tank can set upon a foot of this pressure resisting material. The cover or top can be bolted on. The insulation is a mineralized substance that is dug out of the ground as rock. When it is heated the water of crystallization swells the whole mass into a feather-weight compound full of air cells. It is fire resistant.

By using an oil tank, somewhat heavier than we need for this light liquid, we should have a good factor of safety to counterbalance the low temperatures. A gas holder would regulate the flow of gas through the compressor. An inside coil would be used. Liquid propane would be expanded in this coil under a vacuum of 15 inches. This will produce a temperature of about −60°. The tank will then stand for some hours without the loss of gas or operation of the machinery.

Engineers Attention. It would appear that using spheres of large size and insulating them less, might be a better method. Some pressure might be carried. However, no estimates we have received have been as favorable as the tank without pressure. We invite the attention of the refinery and the natural gas engineers to this problem. The more storage that can be built, the better for us all. Even now we have been forced to build storage at 250 lbs. pressure for many of our bulk plants.

An Industry Without Storage. LP-Gas has been treated by the oil industry as any stepchild is treated. The product appeared on the doorstep in a basket the day that stabilizers were installed in order to take the fizz out of natural gasoline. This fizz was sold for what it would bring. And only storage enough has been installed to provide two or three days' capacity. In the meantime the business has grown and the condition would be laughable were it not so serious. LP-Gas does not have as much storage in terms of days as is provided for oil in month units.

Safety of Insulated Storage. These tanks are insulated against fire and heat as thoroughly as may be. The tank at Eram, Okla. was struck by lightning twice without being damaged enough to prevent its use. This tank was insulated with real cork, whereas mineral insulation is fireproof. No explosive mixture can get into the tank.

An interesting method was used at Eram in determining when the air had been dispelled from the tank, so that the gas could be turned into the compressing system. A toy balloon on a string floated on top of the gas as it rose day after day in the tank. We refer to vapor. When the air was entirely dispelled the balloon floated out through the manhole. The liquid was only a few inches deep on the bottom of the large tank at that time.

From a safety standpoint a broken valve, or a loose connection on one of these tanks will not throw gas around and into the atmosphere nearly so fast as a pressure tank. There are, however, problems with low temperature valves and low temperature as it affects metals.

Insulated storage tanks can best be set at gasoline plants in the oil field. From a practical standpoint insulated tanks require less insulation when set to supply a town which has a high minimum requirement. The minimum requirement may be high enough so that the insulation required may be small.

Difficulties Can Be Overcome

The storage tank would have to be charged slowly with the propane, as the warmer liquid will cause gas to be thrown off. Problems might arise in pumping the cold liquid into tank trucks. We believe that these difficulties are not insurmountable and can be taken in stride by most natural gasoline organizations.

Cost Per Gallon? Preliminary figures indicate that insulated storage will not be prohibitive in cost. It is naturally better fitted to large size installations than to small ones. The surface of these tanks, in which the height equals the diameter, varies as D^2. The capacity varies, however, as D^3. To this fact we can look for relief from cost. Furthermore, large oil tanks have been built for many years by trained oil gangs, who can really do efficient work.

In Table I we give a rather optimistic estimate of what we think might be done with insulated storage. Double the amount of money can be spent. The largest tank

TABLE 1. INSULATED STORAGE

Size	*Diameter and height* $\}=D$	*Surface Varies as* D^2	*Capacity Varies as* D^3	*Surface per Gal.*	*Cost per Gal.*
60,000	22′	1-2275 sq. ft.	1.	.038 sq. ft.	10c
480,000	44′	4	8.	.019 sq. ft.	5c
3,840,000	88′	16	64.	.009 sq. ft.	2.5c

Because of the contraction of the propane at −45°, the tank will hold 25% more than a tank at 105°F. Another 5%, or more, may be added because the liquid will not be varying up and down under the heat of the sun. Care must be used, however, in filling the tank with liquid. It is reasonable to use 20% above the capacities shown and still allow some extra room for flowing in case of accidental heating or fast filling. Add 20% to the capacities shown in the table.

would be sufficient to store about 15,000 gals. per day during the nine months period when propane is universally available. During the winter quarter 60,000 gals. per day would be available for withdrawal, instead of only the daily 15,000 gal. input, the additional gallonage representing the surplus from every day in the other three quarters of the year. This would be the ideal way to operate so as to take advantage of the market which really needs serving.

Not all of the problems connected with this design are, at this time, fully solved but inasmuch as we have found no difficulty in building one storage tank for butane we think it not unlikely that we could do the same for propane, after studying the methods used at Cleveland in storing natural gas.

The building of large storage tanks might solve some of the natural gas industry problems, also. At least the product would be available for standby plants.

Instructions Revised for WPB-541, But Forms the Same

WPB has issued revised instructions to be followed in filing application form WPB-541 (formerly PD-1A) for priority assistance. The instructions became effective May 1.

The form itself has not been changed nor have there been any changes in the data asked for in it.

To conserve paper, applicants are asked to continue to use the old form (printing date, 7-6-43, upper left corner) but following the revised instructions. Separately printed instruction sheets may be obtained at all WPB regional and district offices.

Jas. B. Matthews, LP-Gas Man, Gets Government Appointment

James B. Matthews, Seattle, who has been associated with his brother, Stewart Matthews, in the operation of the Northern Gas Co., has been named deputy manager of the War Finance Committee, U. S. Treasury, for the state of Washington.

William C. H. Lewis is state executive manager.

GET READY TO SELL!

Appliance Men Forecast LP-Gas Market

Survey Your Field

By JULIUS KLEIN

Sales Manager,
Caloric Gas Stove Works,
Philadelphia, Pa.

USE spadework instead of guesswork in gaining a knowledge of your market. Dig up every fact you can concerning potential sales. Facts will turn into dollars in sales volume and profits.

JULIUS KLEIN

That is one fundamental suggestion I have for dealers and distributors of liquefied petroleum gas, appliances and equipment. It is an idea that cannot be emphasized too much or too often. It will be especially valuable for your industry in the days following the war.

A survey of your local field should check on the type and condition of all gas appliances in the kitchens of customers or prospects. Keep in mind the high efficiency of ranges with simmer burners of the dual type and the numerous other features that presently are almost a "must" on a modern day range. Learn the gas equipment needs of consumers in the area survey. With this knowledge you will be prepared for an intelligently planned sales campaign that will not only put new appliances into the kitchen, but will protect the gas load.

During the war, production has been curtailed, or diverted from civilian channels. One result has been intensive research by manufacturers, including our company. The basis of

RECENTLY, Butane-Propane News invited officials of appliance manufacturing firms to express their opinions regarding the postwar market for LP-Gas dealers. Since that invitation went out, developments have occurred that indicate a considerable easing of manufacturing restrictions which have cut off civilian production during the war.

Many small plants have been authorized to resume civilian production where the war effort is not retarded. Alexander Forward, managing director of the AGA, announced that during 1944 the WPB will permit the manufacture of 800,000 standard size and weight gas ranges and 88,000 electric ranges. Robertshaw Thermostat Co. has been granted permission to manufacture 100,000 thermostats, subject to pending changes in Order L-23-c. The AGAEM states that lifted restrictions will result in 800,000 water heaters, 65% of the industry's capacity, being made yet this year. An order now pending in Washington is expected to lift all restrictions on gas heating equipment in 1944, and a large production of refrigerators is hoped for this year.

Reacting to this trend, present advertising gains indicate American industry will spend 2½ billion dollars in 1944, mostly to boost particular products.

So it may be that postwar will be too late to start selling. Anyway, NOW is the time to begin planning and the accompanying messages and those which will follow from time to time, should spur dealers to action in establishing definite sales programs.—Editor.

this research is the fact that no product is so good that it cannot be improved. Consumers will gain through these improvements. Needless to say, the trade also will gain. It is too early to be specific on these improvements or on design trends; however, don't give postwar prospects the idea that they can expect any dream-models because this only tends to create confusion.

Begin preparing now for your postwar survey. Start thinking of an approach that will catch the attention of a prospect. Begin now to outline the facts you need. Make this outline the basis of a questionnaire which should be brief and so designed that it can easily be checked by a prospect. The return of the questionnaire should be facilitated by prepaid postage.

Rapid Expansion Due

By S. E. LITTLE

Vice President in Charge of Sales, American Stove Co., Cleveland, Ohio

CONCERNING the general outlook for the postwar days in connection with the LP-Gas industry and potential appliance sales, we, as manufacturers, believe firmly that we will witness a marked and rapid expansion in the domestic use of LP-Gas.

LP-Gas now enjoys wide consumer acceptance. This acceptance will be extended and assisted by the publicity campaign recently inaugurated.

The LP-Gas industry is now at the point in its development where it will attract adequate capital and merchandising ability at the local distribution or dealer level. We consider this most important.

These, and other important factors and trends, mean, to the manufacturer, a rapidly increasing volume of gas appliance sales, and a much broader market for his products.

Combination range sales, especially, should enjoy a very rapid expansion in the LP-Gas field for the postwar cycle should establish this appliance as the ideal unit for the kitchen of the farm home.

We, at American Stove Co., are most enthusiastic about the future of LP-Gas.

Sell Safety!

By GEORGE H. McFADDEN

President
The Ohio Foundry and Manufacturing Co., Steubenville, Ohio

ONE of the brightest postwar pictures is the further development of the broader use of LP-Gases for space heating—not only for homes but also for countless other structures too.

G. H. McFADDEN

We believe that one sure way to keep the picture bright and boost heating stove sales to high levels is the continued use of the latest equipment and devices that lead to unqualified consumer satisfaction.

Therefore, as a suggestion to all distributors and dealers of LP-Gas appliances, we strongly urge that 99% of your merchandising efforts on gas heating stoves should be confined to those models that feature—

1. AGA approved, 100% vented when connected to a flue (and be sure they are flue connected on installation).

2. Safety valve with 100% shut-off of both main and pilot burners.

These two features are safety features. As such they are most impor-

tant. They were available before the war, are available now and certainly postwar will bring vast improvements from all manufacturers.

It is our hope that merchandisers of LP-Gas heating stoves will include these features in postwar specifications.

Consumer Needs Unchanged

By W. HUBERT TAPPAN

Vice President, The Tappan Stove Co., Mansfield, Ohio

THE war has caused a temporary cessation in our normal commercial activities; but is that a valid reason for concluding that basic consumer needs and desires have changed materially in the interim? Are we justified in deciding that our business procedure and policies need to be radically altered on V-Day?

W. H. TAPPAN

The consumer's principal needs have not changed; food, clothing, shelter—some of the comforts and luxuries of life.

Isn't our task more a matter of (1) now reviewing our past efforts, our errors of omission or commission, then, (2) determining therefrom to do a better job, based on our previous experience and accomplishment?

Assuming that an LP-Gas dealer had been sufficiently long in business, prewar, to have had a reasonable number of customers established, will not one of the important tasks be to get more fuel load from the sale of additional appliances to existing consumers?

Also, to induce the existing customers to replace outmoded appliances with the latest and best? After all, the customer's estimate of the value of the fuel is based on the degree of satisfaction enjoyed from the appliances consuming it.

The rationing of gasoline has brought home the desirability of having our deliveries as highly concentrated as possible; many dealers will doubtless intensify their new business solicitation geographically. In this the existing customer, if satisfied with the dealer's service, can be of great assistance, particularly if there is a suitable award to the customer for leads that prove productive.

Luxury Premiums Appeal

Many dealers who have experimented with different kinds of rewards or premiums report that the most appealing items are in the "luxury" class — articles the housewife has longed to have, but hasn't deemed as practical to purchase as more needed merchandise.

If the premium given will enable the housewife to get more satisfaction out of her range, that would be appropriate: A pressure sauce pan cooker; waffle iron; Pyrex top-of-stove or oven set; perhaps a set of glass or pottery dishes for her Electrolux. An electric kitchen clock is popular.

Of course, some reasonable variety of premiums should be available as an incentive for turning in several leads. Many report that a free cylinder of fuel is acceptable.

In short: To pioneer in the field of selling theories, to try new methods, might prove very expensive — even disastrous! Is it not preferable to do what we did prewar, only determine to do the job better and more intensively?

A Bright Future

By T. G. TACKETT

General Manager, National Butane Gas Co., Memphis, Tenn.

NONE of us knows what conditions will exist immediately following the war. For that reason none of us can plan in detail our postwar operations. However, these uncertain conditions and the lack of detail planning make it imperative that we do some serious thinking about the problems and possibilities of our industry when peace comes.

T. G. TACKETT

The LP-Gas industry now faces its brightest future. We should begin now with general, and as many detailed, plans as possible in order that we may enter into that future better equipped to solve the many problems that will be presented.

There are a number of questions that are as yet unanswered, and our progress immediately following the war depends to a great extent upon a satisfactory answer at the earliest possible date. For instance, when and in what quantities will raw materials be available to manufacturers? When will the finished product be available in sufficient quantities? What is, or will be, the gas situation? Will butane distributors be forced to change to propane, or vice versa? When will present limitation orders be lifted? Will they be lifted in full, or partially? These questions are vital to our postwar operations and are unanswered at the present time.

These unanswered questions, however, do not present insurmountable obstacles. Our prospective purchasers have made and saved money during the past few years. New uses for liquefied petroleum gas have been discovered and new equipment will be available. Liquefied petroleum gas sales have grown in spite of limitations made necessary by the war. In fact, liquefied petroleum gas has literally "gone to war." We are now recognized as a nation-wide industry. The American housewife LOVES gas as a fuel and we have only scratched the surface. All of which adds up to a successful operation after the war IF we are equal to the occasion and will major in Safety, Service, and Good Business Management. No, it isn't a question of what the conditions will be. The question is, will we be ready?

The Future is Yours

By E. CARL SORBY

Vice President, Geo. D. Roper Corporation, Rockford, Illinois

THOSE of us in the liquefied petroleum gas industry take pride in the long strides of advancement made by all branches of the industry during the period immediately preceding the war. Starting from a small beginning several years ago, LP-Gas has reached out and, unheralded and unsung, done an amazing job of bringing modern gas service to numerous homes in rural communities.

CARL SORBY

The start of the war, of course,

temporarily stymied this domestic expansion. But during the war period, in spite of many obstacles, dealers and distributors have continued to supply LP-Gas to two million families throughout the nation.

In the factories of America, too, LP-Gas has become a soldier of the production front. Today it is used widely for annealing, brazing, carbonizing, hardening, melting, metal cutting and for other war purposes necessary to give a real lift to our overall war production picture.

LP-Gas is used in the manufacture of synthetic rubber and high octane gasolines. Several of our important railroads are cooking, cooling and lighting cars with this excellent fuel.

Informed sources predict that the market for all gas burning appliances in the postwar era will be excellent.

By the end of 1944, the savings which people will have accumulated in U. S. war bonds, savings accounts, paid-up obligations and similar manners will reach approximately one hundred billion dollars.

The demand for farm products will undoubtedly continue to be great. Our domestic demand will be heavy. Furthermore, the foreign demand for Amercian food stuffs will be stimulated appreciably. The ability to buy will certainly be with those you want to sell.

As far as degree of saturation is concerned, we haven't even scratched the surface yet. Of 6,914,947 farm homes, only 3.8% are now cooking with gas; 2.7% now use electricity as a cooking fuel. All of the rest depend upon kerosene, gasoline, coal or wood. Certainly that picture affords us an outstanding opportunity to move in and do a job.

In the 12,736,073 homes rated as "town" homes, 36.9% cook with gas. Most of the remainder represent a further opportunity for liquefied petroleum gas sales.

In looking at the path ahead, we certainly have every reason to approach the future with glowing optimism. We know that a tremendous market wlil be ready immediately come postwar. We know that the appliances to be made available by gas appliance manufacturers will be smarter in appearance, more complete in features, better in every respect than anything previously known to the American buying public. We know our fuel is right, for LP-Gas has already proven itself in competition with all other fuels.

The important thing that remains to be done is for every dealer, every distributor, every person associated with the liquefied petroleum gas industry to plan soundly for the future and set in motion now those preliminary activities which will prove so important when active merchandising returns once again.

Display Trailer Selling

By R. M. LIEDSTRAND

Vice President, Dearborn Stove Co., Chicago, Illinois

THERE has been so much talk of "New Developments" that all buyers will, when the war is over, be extraordinarily anxious to *see* the new things offered. Pictures and printed talk will be fine but *seeing* will be *best.* Dearborn used display trailers before the war to enable our trade to *see* what we had. We will use them again when the war is over for we think

R. M. LIEDSTRAND

speed in letting prospects *see*, will then be extremely important.

Showing our merchandise and demonstrating its features was, in our experience, the least expensive way to sell. We think that many LP-Gas dealers and distributors will likewise find the display trailer method the least costly way for them to sell.

The importance of arranging your trailer display as well as your store display so you can demonstrate, is highly important. Letting a prospect *see* a feature actually demonstrated will create more sales than reams of printing and hours of talk.

I once saw a dealer selling better but higher priced sun glasses. He had arranged a light that glared, enabling prospects to *see* the difference between the ordinary and the *best* glasses. His experience proved his demonstration method to be the least costly and the most profitable way for him to sell.

It's hard for a prospect not to believe and enthuse about what they *see;* therefore, we strongly urge your considering ways and means of *showing* and *demonstrating* the *features* of your merchandise in your postwar selling.

More Appliances, More Profit

By LOUIS RUTHENBURG

President, Servel, Inc., Evansville, Indiana

WE at Servel are eagerly anticipating the time when selling is resumed by the LP-Gas industry. We confidently expect an even accelerated rate of growth, compared to pre-war experience, and we clearly see mutually profitable selling opportunities developing. Accordingly, our distribution plans are being shaped with the expectation of finding a large volume of appliance sales in this market.

L. RUTHENBURG

While we are naturally interested in the continued growth of the industry, we feel a special interest in the large number of present users of LP-Gas. The sale of second and third appliances to present users of LP-Gas service offers an immediate and attractive market as soon as appliances are available. The service record being written by LP-Gas refrigerators during wartime will be a strong appeal to influence these old and valued customers.

The economic advantages favoring the increased use of LP-Gas service through gas refrigerators and water heaters are generally recognized today by the industry. Wartime operations have focused attention to the unprofitable gas customer and caused a proper emphasis upon and planning to be given to the customer whose business does produce a profit. Fortunately, the development of profitable customers through enlarged service presents the industry to the public in its most flattering light. The complete gas service is also the best sales answer to the question of competitive fuels.

Servel's merchandising plans will be designed to be of maximum value to the sound development of the LP-Gas industry. We are proud to be part of an industry that has and will continue to contribute so much to the improvement of living standards of the American people.

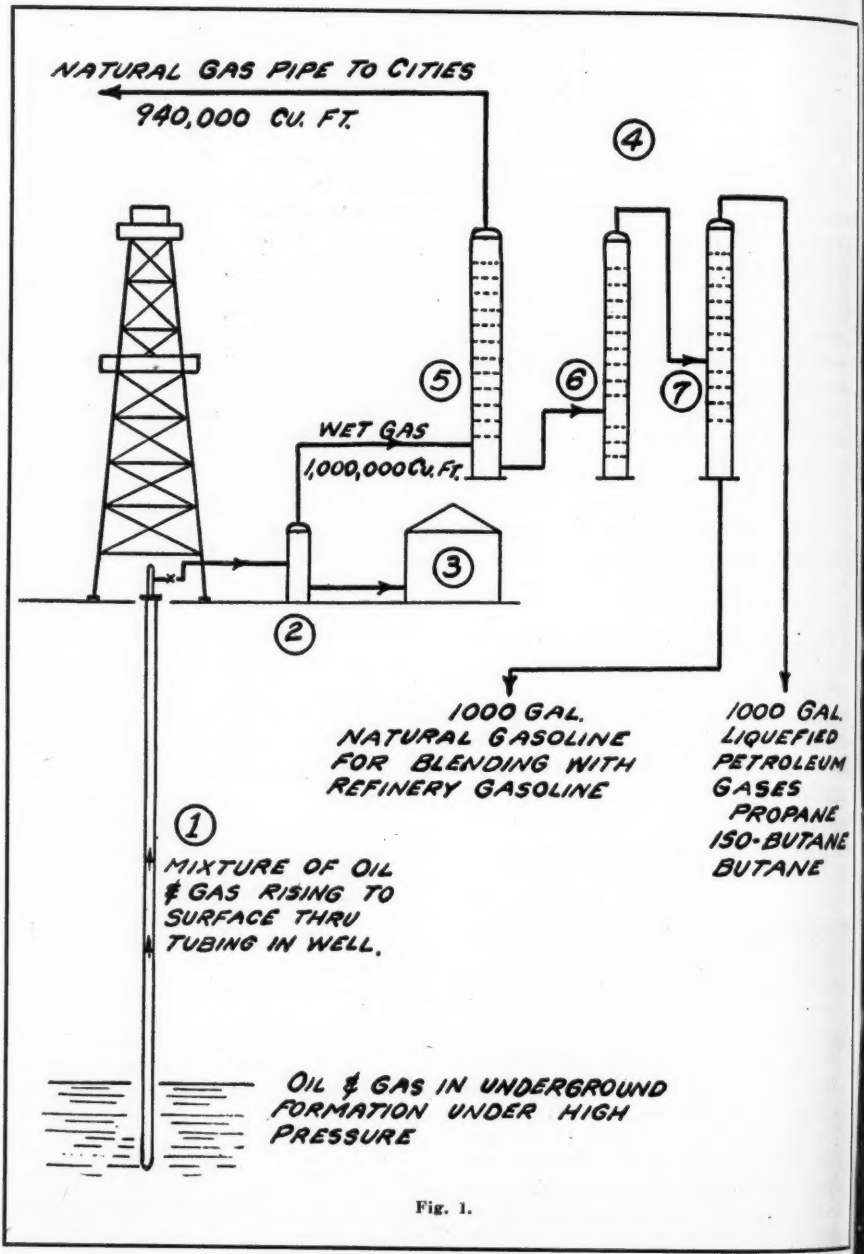

NATURAL GAS PIPE TO CITIES
940,000 CU. FT.
4
5
6
7
WET GAS
1,000,000 Cu. Ft.
3
2
1000 GAL.
NATURAL GASOLINE
FOR BLENDING WITH
REFINERY GASOLINE
1000 GAL.
LIQUEFIED
PETROLEUM
GASES
PROPANE
ISO-BUTANE
BUTANE
1
MIXTURE OF OIL
& GAS RISING TO
SURFACE THRU
TUBING IN WELL.
OIL & GAS IN UNDERGROUND
FORMATION UNDER HIGH
PRESSURE

Fig. 1.

The ABC of LP-Gas

By HAROLD W. WICKSTROM
Technical Editor, Butane-Propane News

THIS article is written to help inform the distributors, dealers, salesmen and users of liquefied petroleum gases who have not had an opportunity to become acquainted with the technical phases of some of the elementary facts pertaining to the methods of obtaining, handling and using these fuels.

To explain what these gases are, let us start at the source of supply. Fig. 1 shows (1) a producing oil well. A mixture of crude oil and wet gas flows from the underground reservoir to the surface through a pipe. At the surface this mixture is led into a gas trap (2). The gas trap is a separator where the crude oil comes off the bottom and is piped to storage (3). The wet gas comes off the top and is piped to the gasoline absorption plant (4). This wet gas contains natural gasoline, liquefied petroleum gases and natural gas. In this plant the gas goes through an absorber where the natural gasoline and liquefied petroleum gas are removed from the bottom and the dry gas or natural gas comes off the top and is piped to cities for use by the utilities.

The absorbing medium is piped to a still (6) where the combination of natural gasoline and liquefied petroleum gas is boiled off to form "wild gasoline" and the absorbing medium returns to the absorber.

IN THE FIRST ISSUE of Butane-Propane News, June 1939, there appeared the accompanying article on the elementary facts concerning liquefied petroleum gases—where they come from, how they are made and distributed, safe handling methods, inflammability limits, boiling points, etc. It was addressed to a young industry, anxious to learn the basic principles concerning the fuels. The war has taken many key men from the industry. Newcomers are in positions similar to those of five years ago. Many more will come into the field at the close of the war. It is for those who can profit from the vital facts in this article that it is being reprinted at this time.—Editor.

H. W. WICKSTROM

This "wild gasoline" is then piped to stabilizer towers (7) where natural gasoline is removed from the bottom as the finished product, and a mixture of liquefied petroleum gases is removed from the top. If desired, this top mixture can again be broken up into three parts, namely, butane, isobutane and propane, and stored separately.

Those in the industry are familiar with the various trade names of these liquefied petroleum gases and have an idea what butane, iso-

butane and propane are. A person buying natural gas thinks of it as such. Actually, it is a mixture of methane and ethane. When one buys motor gasoline he purchases a mixture of butane, pentane, hexane, heptane, octane and maybe a half-dozen more such hydrocarbons.

Propane, isobutane and butane fit in just between natural gas and gasoline. They are like natural gas in odor and burning qualities. They are like gasoline inasmuch as they can be handled and measured in liquid form. They are adaptable to most of the uses of either of these trade products. These fuels or any mixtures of butane and propane comprise liquefied petroleum gas.

Boiling Points Differ

These three components are very similar to each other, the main difference between them being their boiling points and vapor pressures.* Butane boils at 32° F.; isobutane, at 10° F.; propane, at −44° F.

In other words, you could carry an open bucket of butane around the same as gasoline if the outside temperature is below 32° F. For propane it must be 44° below zero before it will stay liquid without evaporating.

Every liquid has a vapor pressure which becomes greater with increase of temperature. Water is common and can be used as an example. If water is heated to 212° F., its vapor pressure increases to greater than atmosphere, and so it starts to boil. If it is held in a boiler and additional heat supplied, the pressure increases. The thermometer shown in Fig. 2 indicates the boiling points and vapor pressures of familiar products for comparison.†

Inflammability

Liquefied petroleum gases, like gasoline and natural gas, are both inflammable and explosive when mixed with the correct amount of air (see Fig. 3). Their usefulness is dependent upon these qualities. When handled in properly designed tanks and equipment, they are no more hazardous than gasoline. However, when carelessly handled they present a hazard equal to natural gas or gasoline.

Liquefied petroleum gases are stored, measured, and shipped by tank car, truck and cylinder in the liquid state, but must be utilized in the vapor state.

To change them from liquid to gas requires the addition of heat. For small installations the heat from the atmosphere or the ground is sufficient to vaporize the material in many instances.

The gas is removed from the tank through a valve and pressure regulator (Fig. 4). The function of the pressure regulator is to reduce the pressure from tank pressure to the very low pressure required to operate appliances. Although the pressure on the tank may be 100 lbs. per sq. in., the pressure in the

*Liquefied petroleum gases, due to their low boiling points, absorb the necessary heat from the atmosphere, and their pressures increase as the temperatures rise.

† For complete characteristics refer to *Handbook Butane-Propane Gases.* Third Edition.

gas line to the house is only about 6 to 8 oz. per sq. in.

To safeguard the handling of liquefied petroleum gases, engineers and accident prevention men have formulated rules for safe handling. These rules are published in booklet form by the National Board of Fire Underwriters, and many states and communities have adopted them as law. The latest revision of these rules. Pamphlet No. 58, has recently been published and is available without charge from any office of the NBFU.

Chances of Explosions Are Remote

The possibility of explosion of a liquefied petroleum gas tank or container is remote. Code containers are designed to withstand greater pressures than are generated from atmospheric temperature. They are provided with safety valves or other means of removing excess pressure in case of fire from outside sources. It is impossible for fire to get into a container as long as there is any pressure in the container. The gas will emit from the tank and burn as a torch. The only chance of explosion is when a correct air-gas mixture is contained in the tank. An empty tank, similar to an empty gasoline drum, that has been left with the valves open so air can be breathed in, presents a hazard if exposed to open flame. This is the reason for requiring valves to be closed on empty containers during shipment and handling.

The vapors from liquefied petroleum gases are heavier than air and tend to settle in low points. In making installations this should be

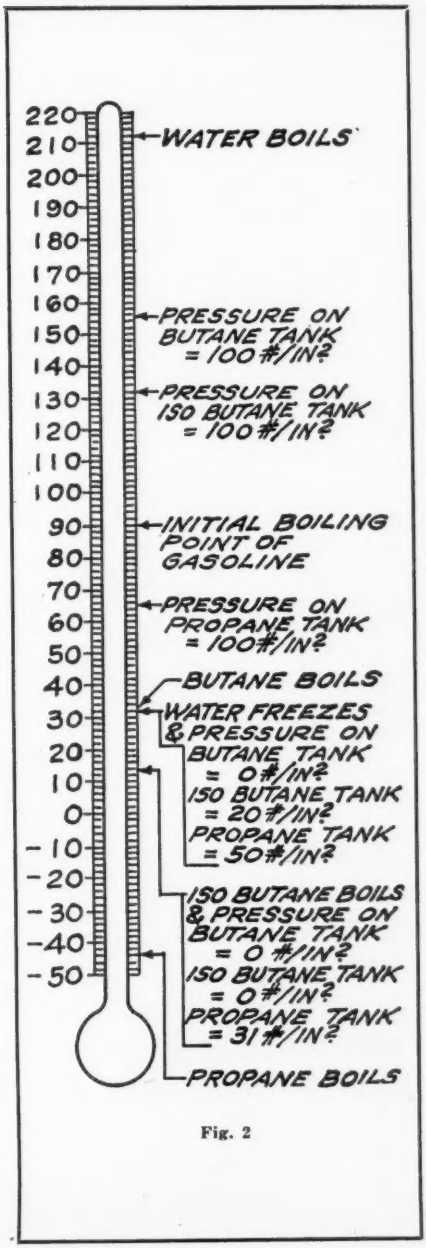


Fig. 2

taken into consideration and bottom ventilation provided in basements if appliances are used there.

Liquefied petroleum gases are not poisonous. The effect produced by them is a form of intoxication similar to gasoline fumes. They are practically odorless and the trade-named products are artificially odorized.

They are excellent solvents of all petroleum and rubber products, and for that reason it is necessary to use pipe dope containing no mineral oils and rubber substitutes for hose and diaphragms. Due to their solvent action the ordinary grades of plumbing and pipe fitting are not satisfactory.

The heat content of these gases is approximately three times greater than natural gas and six times as great as manufactured gas. Because of this, appliances and burners designed for use with other gases are not always so satisfactory, even though altered, as equipment designed for liquefied petroleum gas usage. Dealers and salesmen particularly should recognize the need to recommend and sell only appliances designed for these gases if economy and satisfaction are to be obtained by the user. There are many makes of properly designed appliances available and there is no need for marketing inferior products.

Liquefied petroleum gases can be pumped and metered in the liquid state like gasoline. These gases can also be metered in gaseous form by standard gas meters equipped with special diaphragms and gaskets to prevent drying out. These gases can be pre-mixed with air to provide standby service for natural gas systems. There are many small communities using these gases through piped systems.

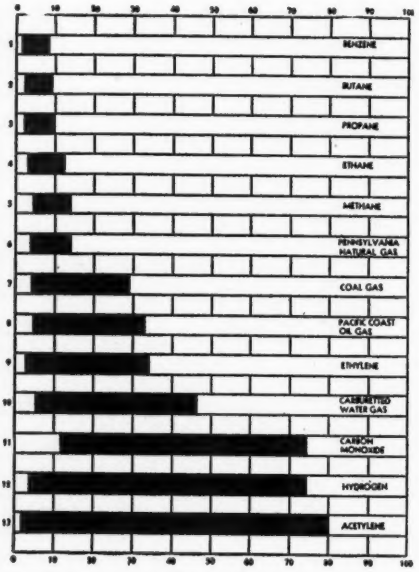


Fig. 3.—Inflammability limits of gases, showing narrow explosive range of butane and propane.

Several Systems Described

In some cases, undiluted gases are piped direct to the consumer. Some of these plants supply 2550 Btu. gas and some 3000 Btu. There are also air-mix systems. Some serve a 550 Btu. gas and others as high as 950 Btu. Manufacturers of appliances can usually furnish the proper burners if advised of the heat content.

Tank gas and semi-bulk units located on the users' premises furnish gas from 2550 Btu. to 3200 Btu. per cu. ft., depending upon the location and the source of supply of the fuel. Appliances built and tested to operate on 3200 Btu. gas can be satisfactorily adjusted to operate on gas with a heat value as low as 2550.

The octane value of these fuels is over 100 and they are supplied to the internal combustion engine as a gas fuel by using some of the heat from the jacket water to vaporize them. However, special tanks and carburetors are required for successful usage. Fuel consumption in gallons is approximately the same as gasoline. There are several makes of carburetors manufactured and sold for this purpose. These have been accepted and used successfully by the operators of truck fleets and automotive farm and construction equipment.

Have Many Industrial Uses

These gases can also be used in place of acetylene for cutting, brazing, preheating, and metallizing, but are not satisfactory for welding. Equipment for these types of utilization is available on the market.

Properly designed equipment and appliances are available and are as important to this industry as to any other.

When considering bulk handling or commercial installations, the operator should avail himself of the experience of competent engineering counsel.

In conclusion it can be stated that liquefied petroleum gas is an all-purpose fuel capable of fulfilling with satisfaction a wide variety of utilizations. Its economy has been proved by the manner in which it can successfully withstand the competition of electricity and other fuels.

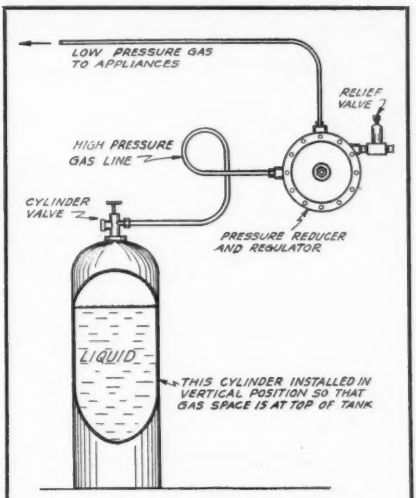


Fig. 4.—Cylinder, valve and regulator.

Clifford R. Nickerson Becomes Head of Los Angeles ODT

The appointment of Clifford R. Nickerson as acting manager of the Los Angeles district office of the Division of Motor Transport to replace William C. Klebenow, resigned, was announced by Roy Long, regional motor transport director of the Office of Defense Transportation.

Mr. Nickerson, who has been serving as assistant regional director in San Francisco since September of 1943, formerly was district manager of the Seattle ODT Motor Transport District Office since September, 1942.

When Peace Comes

met Will Be *Grand*

There are great things afoot at Grand. In the Navy rumors are called "scuttlebutt"... in the Air Forces "prop-wash"... but the news about Grand is more than rumor... it's a happy fact. A new national advertising campaign is in the making... a sound program of national consumer advertising worthy of the quality of the range itself... to spread the news about the new Grand features to your customers. In the meantime, the Grand Ranges in use today go on doing a silent selling job to help you sell still more Grands tomorrow.

Grand

GAS RANGES

GRAND HOME APPLIANCE COMPANY • CLEVELAND 4, OHIO

Midwest Section Expects Big Turn-Out To Denver Meeting June 5-6

MEMBERS of the Midwest Section of the Liquefied Petroleum Gas Association are slicking up their handbags and listing articles they will want to take to their annual convention in Denver on June 5-6. A certain few are burning the midnight butane lights to polish off the important papers which they have been invited to prepare for the occasion.

The selection of Denver seems to have been a happy one, for its elevation assures cool, pleasant weather, while the scenic beauty of Colorado and the preparations that have been made for entertainment of guests will enable those who attend to feel that they are on a vacation as well as a business trip.

Hotel Cosmopolitan, Denver convention headquarters.

A MESSAGE FROM THE GOVERNOR OF COLORADO

To Members of Liquefied Petroleum Gas Association: The war time conference of your Midwest Section on June 5 and 6 presents a golden opportunity for a never-to-be-forgotten visit to Colorado and its "Mile High" Capital City, Denver. Colorado enjoys a nation-wide reputation for cordial hospitality, and you may count on us to provide in every possible way for you, our honored guests.

Colorado is seventh in size and is highest in mean altitude of all the states of the union. This accounts for the fact that our vast expanse of magnificent mountain scenery is unique and peculiar to Colorado, alone. You will be invigorated by our sparkling mountain air and inspired by vistas of the snow-mantled peaks of the Continental Divide, 200 miles of which are visible from Denver.

A most hearty invitation is extended to you and a most cordial welcome awaits you. We hope you will plan to be in Denver in June. When peace comes again we want you to visit us often.

Faithfully yours,

JOHN C. VIVIAN,
Governor

April 13, 1944

According to John L. Locke, Midwest chairman, an exceptionally informative and interesting program has been arranged. The speakers and their subjects will be: R. J. Canniff, Servel, Inc., "Gas versus Electric Refrigeration"; Frier McCollister, Lawrence H. Selz Organization, "The LPGA Publicity Campaign"; E. Carl Sorby, Geo. D. Roper Corp., "The Postwar Kitchen"; Elmer W. Cone, Skelly Oil Co., "You are Asleep at the Water Heating Switch"; I. L. Tucker, Rapid Gas Corp., LPGA Constitution and By-Laws"; Otto A. Kohl, Bupane

Gas Co., "Electric Competition"; G. L. Brennan, Warren Petroleum Corp., 'Safe Practice in Storage and Handling of LP-Gas".

Chairmen for the several sessions will be L. R. Forsyth, J. R. Verkamp, Charles O. Russell and John L. Locke. Roundtable meetings will be presided over by B. D. Geroy and Paul F. Zuppke. Motion pictures will be presented through the courtesies of Gene MacDonald and Shell Oil Co., Inc.

There will be luncheons both days of the convention, a dinner dance on the evening of the first day, and an old fashioned "Rocky Mountain Dinner" the second evening.

Mr. McCollister will report on the progress of the publicity campaign that his organization is conducting nationwide on behalf of the LP-Gas industry, and which is laying the foundation for dealer sales work as soon as the war permits expansion.

Equipment exhibits will feature the Denver meeting. There are but a limited number of booths, 8 x 10 ft. in size, and these are being allotted to manufacturers in the order of reservations made. Those interested in obtaining exhibit space should address L. D. Eaton, Eaton Metal Products Co., 4800 York St., Denver.

Headquarters for the convention will be the Cosmopolitan hotel, and room reservations should be promptly made with Manager J. B. Herndon.

E. W. CONE

R. J. CANNIFF

Denver's civic center and scenic environment.

Still another step in
Post-war
action
~~planning~~

MILLIONS

OF MESSAGES IN '44

to sell Gas Refrigeration after the war!

7 Top magazines with 20 million circulation carry new advertising campaign to your customers.

This year Servel will knock on the doors of millions of families to pave the way for Gas Refrigeration sales after the war. A large percentage of these families are already using L-P Gas—others are prospective customers.

To these people, Servel is telling the most powerful story that can be told for Gas Refrigeration. It's the story of the *only* automatic refrigerator with no moving parts in its freezing system to wear or make noise.

This new campaign will not only help you sell L-P Gas Refrigerators after the war—it will also stimulate the sale of other L-P Gas Appliances.

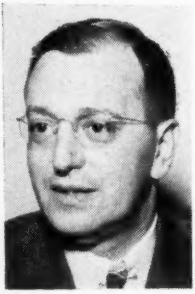
Servel, Inc.

LPGA Has Done A War Job

By LOUIS ABRAMSON, Jr.

President, Liquefied Petroleum Gas Assocation, and President, Petrolane Gas Co., New Orleans

THE moment that war was declared, the liquefied petroleum gas industry became a critical one. The vital uses of propane and butane gases themselves are notoriously legion and the heavy metals required for storage containers, the specific control valves for these gases, and the metal components of related appliances are directly essential to the war effort. For this last reason and because of the fact that the liquefied petroleum gas industry is a young and rapidly expanding one, with no great backlog of information and statistics, it has been particularly difficult to mobilize it for the most effective war-time utilization, both from the point of view of governmental control and that of the industry, itself. Since the beginning, the LPGA has attempted to do everything possible towards expediting the mobilization of the industry.



L. ABRAMSON, JR.

The first task was one of organization—to get the industry cleanly delineated and characterized so that there would be no unnecessary delays or inefficiences due to overlapping and misclassification. Frank Fetherston, executive secretary, had contacts with effective members of the national agencies, as did other members of the LPGA board, so that they were able to point out the fact that our industry has a diagonal structure, cutting across the domestic gas services, commercial gas distribution, industrial gas supply, industrial

WHEN THE WAR broke out and our government began issuing restrictive orders to all branches of industry, the liquefied petroleum gas industry found itself in a tragic position. Government officials didn't know what LP-Gas is; they didn't know where or how to classify it; they didn't know its importance in the lives of hundreds of thousands of rural residents, nor in commercial and manufacturing fields, and they didn't know the kind of equipment necessary for its safe transportation, distribution and utilization.

Yet the industry had to be controlled, along with others. At first there was some confusion but, fortunately, it was not long until officials turned to the Liquefied Petroleum Gas Association for advice and assistance. Association officers and members, intimately knowing the problems of the industry, could and did supply the necessary information, and as a result our industry probably has been more wisely and discreetly directed than almost any other civilian activity.

Realizing how few members of our industry know this, Butane-Propane News invited Louis Abramson, Jr., president of the association, to tell what has been accomplished, and this he does in the accompanying article.—Editor.

standby, gas enrichment, synthetic rubber fabrication, aviation fuel production, chemical manufacturing, agricultural usages, refinery utilizations, et cetera, and that it should be placed in a separate category in order to permit its most effective use in the war effort. Thus, LP-Gas was soon recognized as a specific industry and was rescued from submergence in the War Production Board or the Office of Petroleum Coordinator.

Members Named on Advisory Board

LPGA assisted at the inception of the War Production board orders controlling this industry, from the formulation of the first limitation orders. An industry advisory committee to the LP-Gas section under the Plumbing and Heating Branch of the War Production Board was established, of which practically every member was a board member of the association. This committee helped to plan an effective and workable program of restrictions with the optimum yield to the war effort.

In order to furnish convenient cooperation to the War Production board and the industry, the LPGA opened a Washington office, which provided an active liaison base between the government and the industry. It permitted speedy dissemination of information about orders, interpretations and trends, which kept LPGA members advised in a very chaotic period while industry was being harnessed to the war effort. It arranged promptly industry - government meetings where executives of the war agencies could explain the problems.

One of the most important of the specific ways in which LPGA has been able to assist the War Production board is the transportation difficulty. A survey made in 1942-1943 indicated an acute shortage of pressure tank cars, and permission for additional cars to be built was secured, while existing equipment was allowed to be converted for higher pressure usage, under Bureau of Explosives, ICC and ODT approvals. Additional truck transport equipment was recommended throughout the industry, and steps were taken to secure effectively the urgently needed materiel.

Along with its war efforts, LPGA has been active in fitting its members to assume their proper place in industry after, as well as during, the war. For example, a liaison has been established with the American Petroleum Industries Committees in order to provide legislative contact in every state capital in the United States. As a result of this arrangement, the LPGA legislative committee has been and will be able to follow legislation in all of the legislative groups, from municipality to state to federal.

Committees Perform Important Work

A safety committee and a transportation committee have been effectively utilized to prepare the industry intelligently for present and future operations. The Technical and Standards Committee's work is well-known throughout the industry. The publicity committee has done a remarkable job in harnessing manufacturing and dis-

of the Industry

The automatic screw machines at the left are operating on a 24 hour basis making millions of vital parts and equipment for our planes, tanks, ships and guns. Brass, aluminum, plastic or other material in the form of long rods or tubing is fed into these machines and all cutting, facing, threading and slotting are done entirely automatically, so the finished parts roll out as regularly and dependably as clockwork.

This is just one section of the great Bastian-Blessing plant which typifies true American enterprise. Industry has reached phenomenal achievement by producing as much war equipment as all the rest of the world combined. Inventive and productive genius has been tapped to the fullest degree. The men and women in the factories are doing their all in this tremendous production program to back their boys in the armed forces.

The same determination that has made America first in war production will make it first in a post-war world. And Rego LP Gas equipment will likewise retain its enviable prestige by countless improvements and additions. Rego will continue as the first choice of the industry.

REGO

LP GAS EQUIPMENT

ARMY (E) NAVY

BUY WAR BONDS FOR VICTORY

tribution to pull as a team in laying the ground work for LP-Gas in the lives of tomorrow's American public.

Probably the most significant recent advancement that has been made, in my opinion, has been the reorientation of executive board representation from solely industry or trade groupings to geographical groupings. This development has been logical and equitable, and has caused a great deal of satisfaction amongst members from all sections.

The fact that one phase of cooperation with the war effort has, of necessity, constituted the maintenance of the existence of the LP-Gas industry detracts not at all from the pride which we may take in our war efforts, since in order to remain effective, we must certainly remain in existence. However, the great preponderance of our work during the last two years has been directly related to serving the war effort, for during this period of strife through which we are passing, any organization must feel the necessity of justifying its existence by so doing. What we have attempted to do through LPGA has been to organize, analyze and distribute our services, equipment and products so as best to mobilize the industry to make its most effective contribution to the war effort.

PRODUCTION AND DISTRIBUTION OF LP-GASES* IN THE UNITED STATES

(Thousands of gallons)

	Feb. 1944	*Jan. 1943*	*Feb. 1943*	*Jan.-Feb. 1944*	*Jan.-Feb. 1943*
PRODUCTION:					
Isobutane at natural gasoline and cycle plants	18,438	17,892	12,306	36,330	24,360
Other LP-Gases at natural gasoline and cycle plants	76,146	75,894	65,100	152,040	137,634
Total	94,584	93,786	77,406	188,370	161,994
STOCKS—END OF MONTH					
Liquefied petroleum gases	43,512	41,622	24,444	43,512	24,444
DEMAND:					
Liquefied petroleum gases and benzol	38,724	44,688	29,694	83,412	62,118
Liquefied petroleum gases for fuel	45,318	43,554	34,818	88,872	69,426
Exports, liquefied gases for chemical uses, and losses..	61,446	45,234	40,614	106,680	82,026
Total demand	145,488	133,476	105,126	278,964	213,670

BUTANE Power

Nature Made LP-Gas an Engine Fuel Superior to Diesel and Gasoline

By RALPH G. ABBOTT

Chief Engineer, Ensign Carburetor Co., Ltd., Huntington Park, California

BUTANE, propane, or a mixture of the two, are members of the great family of liquefiable petroleum gases. We can at will have either gas or liquid under moderate pressures in ordinary atmospheric temperatures. This chemical fact makes these gases the ideal motor fuel and gives them one of their many advantages over gasoline or diesel. Mother Nature was kind enough to give butane and propane a molecule size considerably smaller than gasoline or diesel fuel which gives the gas a specific gravity nearer that of air. This characteristic is most desirable in any movement of mixture as is found in the manifold, valve parts and valve chambers.

Gasoline, no matter how volatile, is a blend of light and heavy hydrocarbons. This means the induction system has to be designed to transport the heaviest ends at a velocity sufficient to get them into the cylinder. Even with these high velocity induction systems the heavy globules of fuel puddle in the manifold which results in poor distribution, some cylinders running richer than others. An attempt to overcome this puddling is done by adding heat to the manifold which cuts down the volumetric efficiency. These richer cylinders have the tendency to carbon up the heads and piston rings, resulting in excessive wear, oil blow-by and general loss of efficiency and need for frequent overhauls.

In the butane-propane engine the fuel is brought from the tank by tank pressure, thereby immediately eliminating the transfer pump with its upkeep and possible mechanical failures. The liquid fuel is then thoroughly and completely gasofied in a vaporizer which is water jacketed and heated by water from the radiator. This means the maximum temperature the gaseous fuel can obtain under the most adverse conditions is under 212°. Normal gaseous fuel temperatures leaving the vaporizer are in the neighborhood of 120° which is considerably below the intake temperatures of

gasoline manifolds of even those engines designed to run only on the highest grades of gasoline.

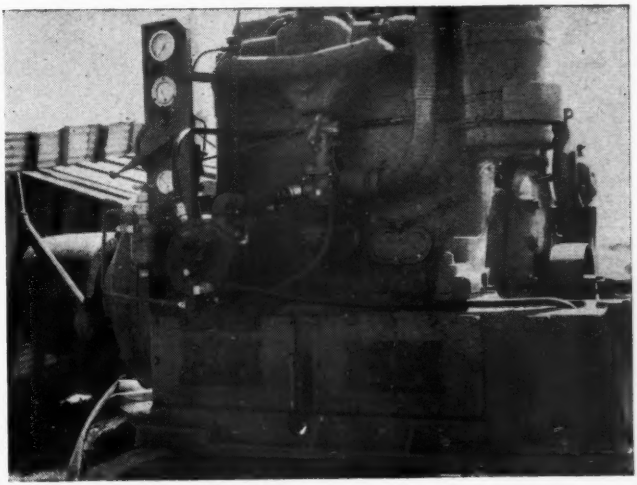
In the Ensign system the fuel is metered twice by means of dual metering regulators. Each metering valve is so situated as to meter either all liquid or all gas, thereby eliminating the necessity of the regulator trying to meter liquid and gas at two different specific gravities at the same time. This single specific gravity metering makes for stability.

The second stage of metering regulation reduces the pressure to a fraction of an inch of water suction and thus delivering the fuel to the venturi of the carburetor in direct proportions to the minimum needs of the engine. When this single specific gravity fuel is brought to the crest of the venturi by slightly sub-atmospheric suction, it is thoroughly mixed with cool air into a homogeneous mixture. This homogeneous mixture of dry gas and air being of close specific gravities permits the design of manifolds, valve parts and

THE USE OF LP-GAS IN INTERNAL combustion engines is of increasing interest to the industry as its superiority over other fuels has been continually demonstrated in heavy duty work. While conversions have been largely halted during the war because of a scarcity of necessary equipment, there is expected to be much expansion of such applications when the war ends.

Since butane was first used for engine power, there have been discussions of its merits as compared to diesel fuel and gasoline. Mr. Abbott's accompanying article can leave little doubt in the reader's mind where LP-Gas, supported by its past record of performance and economy, stands competitively.—Editor.

R. G. ABBOTT



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Straight butane installation on engine driving agricultural water pump.

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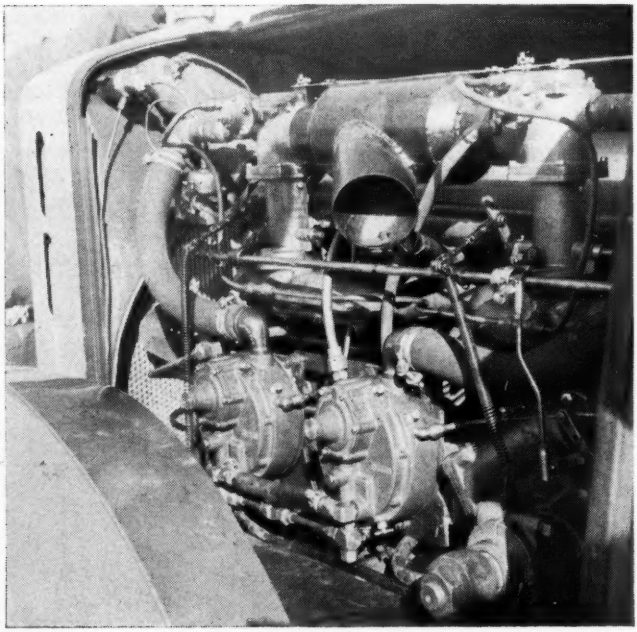
openings to be the correct size for maximum volumetric efficiency.

Because we have a homogeneous mixture of dry gas and air we have even distribution in each cylinder giving the maximum horsepower per cylinder at the particular compression ratio. Because we have dry gas and air we have eliminated all cylinder wall wash, ring carboning and general carbon formation which reduces to a minimum cylinder, piston and piston ring wear. This lengthens the time between overhauls many fold. Because we have a mixture of dry gas and air we have eliminated crank case oil dilution which lengthens the useful life of the lube oil 8 or 10 times. Because there is no dilution of the lube oil a lighter grade should be used which gives the engine better lubrication and again increases the life of the engine and gives a higher operating efficiency.

The molecular structure gives butane an octane rating of approximately 100 and propane an octane rating of approximately 120 so that the blended mixture is between these figures. This means the compression ratio of the engine in question could be raised to give better efficiency. There is no set rule as to the method of raising compression or how much it can be raised. This depends on the type of engine involved and on the recommendations of the engine manufacturer. Other factors, such as the capacity of the ignition and



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Large Hall Scott engine in heavy materials truck using two carburetors and two regulating units.

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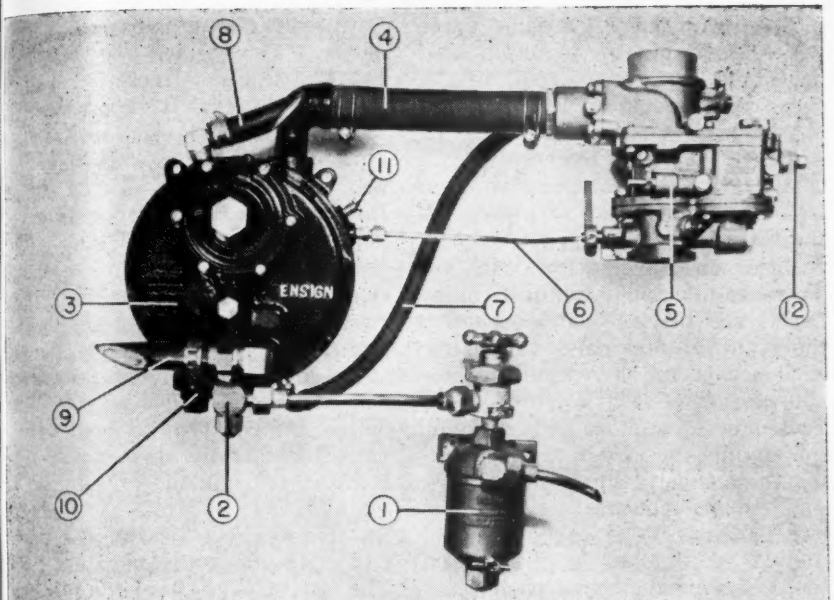


1 Ensign Liquid Butane Filter
2 Fuel Inlet To Butane Regulating Unit
3 Ensign Model "R" Butane Regulating Unit
4 Butane Gas To Carburetor
5 Ensign Carburetor (Combination)
6 Idle Line
7 Balance Connection
8 Hot Water From Cylinder Head
9 Water Outlet
10 Gas Outlet (Alternate)
11 Idle Adjusting Screw
12 Gasoline Inlet

Assembly of equipment for downdraft combination butane and gasoline carburetor installation.

starter, must be considered. Raising the compression is more than just planing down heads or high altitude pistons. More will be said concerning compression ratios during the comparison with diesel.

Even on the same miles per gallon fuel consumption, we have records of engines that have paid out the total cost of conversion in six months of operation, due to the many savings in upkeep and oil consumption.

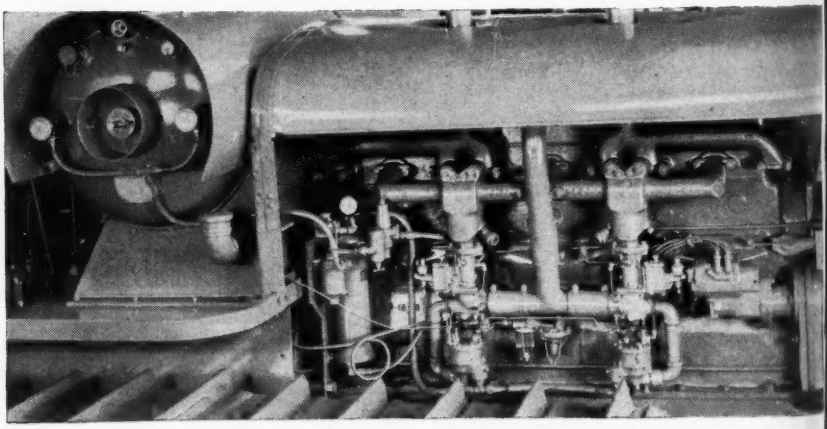
The principle of diesel operation is the compressing sufficiently of the air taken into the cylinder to raise the temperature of that air above the ignition point of the fuel injected. This necessitates a high compression pressure which is the result of a high compression ratio. This high compression pressure

means very heavy engine parts which cost money to build and dead weight to carry and, in the case of a truck, a reduction of pay-load. In order to be sure of sufficient ignition temperature in cold weather, the compression ratio is far above that ratio which gives the maximum volumetric efficiency.

Based on conversations with various engine manufacturers plus experience in our own laboratory, the point of maximum volumetric efficiency occurs between compression ratios of 8½ to 10½ to 1. This depends on bore and stroke of the engine, the larger engines having the smaller compression ratios.

Based on some tests run in our own laboratory of a conventional diesel, running as a diesel and then converted to burn butane-propane, we found the optimum compression ratio to be approximately 9 to 1. At this ratio this particular engine gave nearly 40% more horsepower at the same speed. Both were set for maximum horsepower. The diesel was set for 110% of the manufacturer's rating and at this point was smoking badly. The fuel economy of the butane-propane run was very remarkable, being only ⅓ (.35) lb. of fuel for each brake horsepower developed for one hour.

The overall operating cost of this engine is of interest. When it was operated as a diesel the oil had to be changed every 60 hours; after converting to butane the oil was inspected and tested at 500 hours and showed in good condition. Incidentally this engine held some three gallons of oil. The maintenance of this as a diesel was constant as the injector pump and injectors needed constant care. The valves required periodical grinding to hold the high pressures. All of this was eliminated when converting to butane. Valve grinds became the exception rather than the rule.



Dual carburetor installation on Model L Allis-Chalmers tractor.

Soldier's Wife Operates Town Plant When Butane Replaces Water Gas

By FRANCIS E. DRAKE

Consulting Engineer, Pacific Gas Corporation, New York City

IN the year 1936 the then run-down coal gas plant at Lawrenceburg, Ind., was purchased by A. R. Stryker, employed at the time by the Cincinnati Gas and Electric Co.

This was in the experimental days when butane was first being used for water gas enrichment. Mr. Stryker saw its potential possibilities and when economically feasible utilized it in place of gas oil. Meanwhile, he developed a substantial bottled gas business in the adjacent territory.

Decided on Simple Equipment

About one year ago, when the labor problem became most acute and he had decided to offer his services to the army in its plan for utility rehabilitation work in foreign countries, Mr. Stryker's attention was directed by the Pacific Gas Corp. to "Gasair" equipment for delivering butane or propane gas of any predetermined Btu. The simplicity of construction and operation and the limited personnel needed caused Mr. Stryker to place an order for two 5000 cu. ft. per hour "Gasair" units and he secured two second hand 12,000 gal. tanks that would withstand butane pressures, but not propane.

Installing this equipment and putting it into operation early in December, 1943, the customers were changed over from water gas of 570 Btu. to 750 Btu. butane-air gas and, in February, Captain Stryker sailed and is now somewhere in England.

The new "Gasair" plant and the Lawrenceburg operation was left in charge of Mrs. Stryker, vice president of the company.

The combined population of Lawrenceburg, Greendale and Aurora is about 10,800, with 500 meters in the first two named places and 500 in Aurora, which is part of the system of the Public Service of Indiana and 3.2 miles from the gas plant.

No difficulties were experienced in the changeover other than those bound to occur when ranges and water heaters of ancient vintage are encountered. The burner ports had to be drilled out, adapters applied where possible, or new spuds inserted and air shutters adjusted.

Heater burners drilled	32 or 30
Space heaters	30
Oven burners	35 or 32
Top burners	40 or 37

The gas making equipment consists of two complete "Gasair" vaporizer and mixer units. These came from the manufacturer all assembled ready to place out-of-doors on a concrete pad, connect up with piping and start operating. Each machine weighs about 940 lbs., stands about 5 ft. high and is approximately 20 in. x 24 in.

The vaporizer is sealed off from the mixer unit since in this section there is a pilot light going at all times and which ignites the main burner to gasify the liquid coming from the storage tank. This is done entirely automatically. Safety automatics are provided

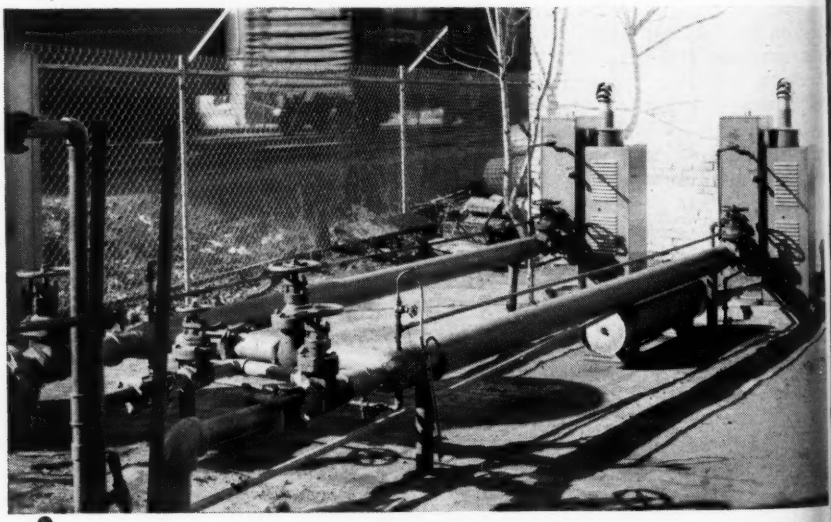
so if for any reason the pilot goes out the burner cannot come on.

The mixer consists of a nozzle and venturi tube with proper control mechanism. Undiluted vapor from the vaporizer passes through the nozzle pressure regulator and is regulated to the desired pressure on the nozzle pressure gage. The vapor then passes through the mixer valve control and to the nozzle. In expanding from the nozzle into the venturi tube it creates a suction which draws in air through a check valve. The mixture of vapor and air is then forced out through the venturi tube to the mains leading either to a holder or directly to the city, as desired. The amount of air drawn in can be adjusted by the size of the nozzle and the nozzle pressure, to get the desired Btu. value of the made gas.

The mixer control is arranged to be actuated by the pressure in the made gas mains or it may be arranged for operation by the holder position, either nearby or at a distance. In either case it turns the machine entirely "on" or "off," for any throttling action would change the velocity through the nozzle and thus change the Btu. value of the made gas. Load variations are cared for by the ratio of "on" time to "off" time as controlled by the made gas outlet pressure. A slight change in pressure is permitted.

The made gas pressure at which the mixer control turns on is set by the amount and position of the "on" weight. This is readily changed by releasing a set screw and moving the weight forward or backward on an arm.

At Lawrenceburg the two machines are set to run either independently or together. No. 2 machine is on the line all the time, No. 1 being set by the weight mentioned above, so that if for any reason No. 2 machine shuts down or does not deliver gas enough, fast enough, the drop in pressure in the



Gas-air installation at Lawrenceburg, Ind.

outlet main cuts in No. 1 machine and it takes up or makes up the load. The cutting in and out of these machines is almost magical and with a Btu. indicator on the resultant gas a perfect record is obtained 24 hours of the day.

No labor is required except a visit to the plant once or twice a day to check on tank pressures and change charts.

The machines feed into a 3-in. line going direct to Aurora at a pressure of about 1.5 psi., delivering 30 MCF. per day, and into a 4 in. line leading to the Lawrenceburg system and a holder requiring 45 MCF. per 24 hours. Aurora has a 60 MCF. holder at its end of the line and there is one of similar capacity at the gas plant and almost constant, perfect regulation can be obtained automatically.

Holders are, however, unnecessary for perfect operation as there are many of these units operating directly into the distribution system. These machines also work out excellently for auxiliary augmentation of existing coal, water or oil gas plants, no matter what the Btu. requirements. Also, for small plant operation, when labor is scarce and high.

CNGA To Stage Annual June Frolic at Rio Hondo

The annual June Frolic of the California Natural Gasoline Association has been set for Saturday, June 3, according to George L. Tyler, secretary of the association.

Rio Hondo Golf Club near Downey, Calif., will again be the scene of an all-day program of sports, fun and relaxation for some 500 CNGA members who once a year get out from under the pressure of business worries and have a good time together.

From the time the first golfers tee off at 7:30 Saturday morning till the last act of the big floor show, the entertainment committee, headed by H. A. Dresser, of The Fluor Corp., promises a day of fun and frolic.

Heading the list of sports events will be a baseball game scheduled for 2:30 p.m. between "The Supply House Peddlers" and "The Oil Companies Gas House Gang," a grudge fight carry-over from last year's match in which the oil company members defeated the supply house boys. This game should prove a four star attraction. Other events on the calendar will include golf, volley ball, ping pong and horseshoes.

Members are being urged by Secretary Tyler to mail in their reservations with check to the association as soon as possible. The address is 510 W. 6th St., Los Angeles.

Book on Selective Service Procedures Now Available

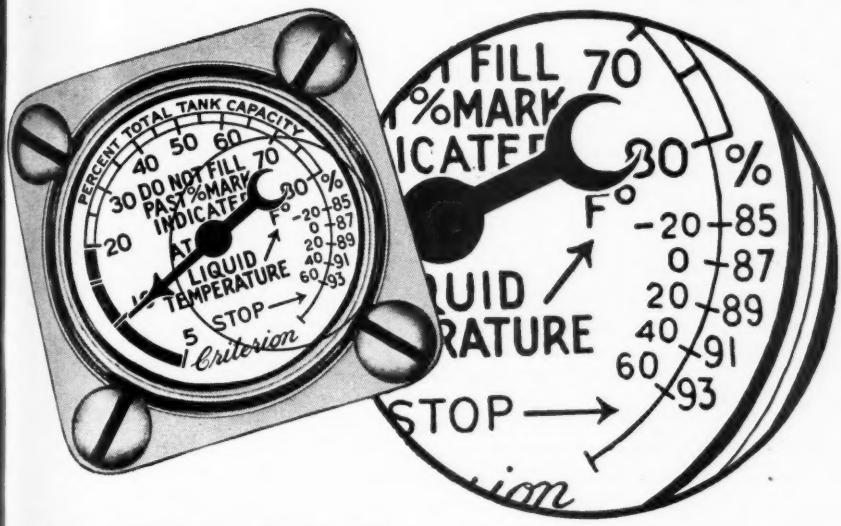
WPB's Office of Manpower Requirements has issued a publication, "Advice to Employers Regarding Selective Service Procedures," outlining the various steps an employer must take through local and state Selective Service channels before WPB can assist in cases of key employees.

Among the subjects handled are: Essential occupations, critical occupations, contributory occupations, age factor and considerations for fathers, other occupations in essential activities.

Also dealt with are special procedures affecting registrants under 26 years of age before local boards. Various appeal procedures are also outlined and the use of the replacement schedules is dealt with. WPB emphasized that it cannot undertake to assist in urgent cases until all local avenues of relief have been exhausted. Copy of WPB Release 5566 can be obtained directly from the WPB, Washington, D. C.

MAKE TANK READING

doubly safe with Rochester Gauges



With Rochester Gauges, you make tank reading safe because you eliminate the necessity of opening tanks to take readings—do away with tubes and dangerous manual methods. All you use is your eyes.

The magnetic principle of Rochester Gauges adds safety because gauge parts in the tank and gauge head are separated by a solid metal floor. Gas escape is impossible even if the gauge crystal is accidentally broken.

All dials are accurately calibrated at filling levels recommended by Underwriters Laboratories. F° markings on dial tell you maximum filling density at various liquid temperatures and bring safety in filling too.

Rochester L-P Gauges are Underwriters Listed and are available for underground and above ground systems in types to meet your requirements.

Make it a point to consult Rochester Engineers on all your gauging requirements. Our experience, specializing in building over 20,000,000 gauges may be able to help you solve your problems—whether pressure, temperature or liquid level indication.

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ROCHESTER *Individually Calibrated* **GUARANTEED ACCURATE INSTRUMENTS**
FOR ACCURATE LIQUID-LEVEL, PRESSURE and TEMPERATURE INDICATION

California Rules Body Meets June 7 and 14 to Revise Code

THE California Industrial Accident Commission will hold the following public hearings to consider the adoption or revision of certain of the liquefied petroleum gases safety orders:

In Los Angeles on June 7, at 3 p.m. in the auditorium of the State Building. In San Francisco on June 14, at 3 p.m. in Room 160 of the State Building.

All interested persons are invited to attend. The new orders to be presented and the present orders to be revised, together with the proposed revisions, are given below.

Order 2007(a). Any containers manfactured and maintained under the I.C.C. specifications for the transportation of liquefied petroleum gases via common carriers, and regularly used for such service, are exempt from the provisions of these orders.

It is proposed to add the following:

This exemption is applicable to I.C.C. containers only while under the jurisdiction of the Interstate Commerce Commission, i.e., while in transport via common carrier, and not while in service in places of employment.

Order 2007(b). Domestic installations of liquefied petroleum gas in which the liquefied gas is stored in containers, each manufactured and maintained in conformity with the I.C.C. regulations for storage and shipping containers appropriate to the gas concerned, are exempt from these orders.

It is proposed to delete this order.

Order 2008. It is proposed to change Paragraph 4 of Order 2008(b) to read as follows:

The construction of containers having a volumetric water capacity not to exceed 7.5 gals., having no longitudinal seam and built in accordance with the provision of either the API-ASME or ASME Unfired Pressure Vessel Codes, except as to shop inspection, may be reported to the Commission by the manufacturer under affidavit in lieu of shop inspection.

Order 2012. It is proposed to add the following after Paragraph 1 of Order 2012(b):

Containers built and maintained according to I.C.C. specifications or according to the liquefied petroleum gases safety orders, and each having a volumetric water capacity of 80 gals., or less when installed in sets of not more than 4 containers, 2 in use and 2 as standby, on a substantial level base at least 4 in. high above ground level, filled or refilled at a properly equipped filling station, and having safety devices and fittings found safe and satisfactory through experience in the past, shall be exempted from that part of Order 2012(b) which specifies that above ground tanks be not less than 50 ft. and underground tanks not less than 25 ft. from the nearest important building or group of buildings or nearest adjoining property line.

If a set of more than 4 containers of the type described in the preceding paragraph are to be installed a special permit from the Commission is necessary. Requests for special permits must be made in writing, including full details of the proposed installation.

Portable containers complying with the requirements of the two preceding paragraphs and containing blaugas or normal butane used in manufacturing plants need not have the 4-in. base.

Order 2024. It is proposed to add the following after the first sentence in Order 2024(a):

Valves having the body strength called for in the order, and built especially for liquefied petroleum gas and/or water, oil and gas service may be accepted.

CURRENT READING

• Reviews of new books, pamphlets and articles published in recent magazines of interest to technicians and executives in the liquefied petroleum gas industry.

Petroleum Refining Terminology—M. E. Kelly and D. A. Howes. "Journal of the Institute of Petroleum," Jan., 1944, pp. 1-9. The petroleum refining industry has made many rapid advances during the past few years which are not so much advances in manufacturing and refining technique as the large-scale development of processes based on hydrocarbon reactions of recent discovery. Such advances have brought about the introduction of a somewhat complicated terminology, and in writing this paper the authors have responded to a suggestion made to them by Dr. Dunstan that this terminology might be simply described and explained for the benefit of those who are not in daily touch with new refining developments. The paper is arranged as follows: A. Recent synthetic processes (alkylation, catalytic cracking, dehydrogenation, hydroforming, hydrogenation, isomerization, polymerization, thermal cracking); B. Recent refining processes (removal of hydrogen sulfide from gases, removal of mercaptans from sour benzines); C. Recent distillation processes.

100-Octane Program Ranks as One of Industry's Outstanding War Jobs. "California Oil World," 2nd Feb. issue, 1944, pp. 5-13. Completion of the California oil industry's great aviation gasoline construction program is only a few months away. By mid-year, most of the plants in this program will be turning out 100-octane gasoline for our flyers in the Pacific. Five have been finished in recent weeks. Construction on seven others is being rushed, with the cooperation of the PAW, the Army and Navy.

Stuffingbox for Refinery Pumps—Packing vs. Mechanical Seal—A. Hollander. "California Oil World," 2nd March issue, 1944, pp. 17, etc. This article is a comparative examination of the standard stuffingbox with pliable packing vs. the stuffingbox with mechanical seal.

Gas Turbines Offer Opportunities for Process Use—S. A. Tucker."Chemistry and Metallurgy," March, 1944, pp. 96-99, 108. Although the gas turbine has been well known in the petroleum industry for the past seven years, where some 35 are now used as an auxiliary to the Houdry process, interest is rapidly increasing owing, perhaps, to announcements in connection with their use in jet propulsion for aircraft, and in airplane engine supercharging. As the most versatile type of prime mover, the gas turbine can produce compressed air, hot gas and by-product steam, in addition to power. In some cases it can operate on by-product heat from exothermic reactions. The theory and operation of the gas turbine are explained.

Selection of the Right Pipe for Power Piping Systems—A. C. Kirkwood. "Heating, Piping and Air Conditioning," March, 1944, pp. 129-131. Author discusses pipe selection for power piping systems in accordance

with the American Standard Code for Pressure Piping. After considering briefly the general conditions surrounding selection of the desirable pipe material and the correct wall thickness, he presents four charts which may be used to simplify preliminary studies of the problem and reduce the amount of time required for them. The methods described have been used on a number of important power piping projects.

Some Notes on the Interchangeability of Heat Exchangers—P. S. Otten. "Chemical Industries," Feb., 1944, pp. 210-212. Reconversion in the chemical industry will mean that many a piece of equipment will be taken out of one service and put into another different from that for which it was originally designed. The plant engineer who may soon be confronted with the problem of selecting a suitable shell and tube heat exchanger for a given job from among several that happen to be on hand, will find some helpful tips in this article.

Operating Procedure for Determining the Heat of Combustion of Gasoline—E. W. Dean, A. A. Williams and N. E. Fisher. "Industrial and Engineering Chemistry," Annual Edition, March, 1944, pp. 182-184. This paper describes details of operating procedure for determining the heat of combustion of gasoline. The degree of precision and the economy of conducting the tests compare favorably with those possible for petroleum products of low volatility.

Technology Advance Cited as Refutation of Oil Shortage Alarmists—R. E. Wilson. "National Petroleum News," March 22, 1944, pp. 18, 20, 40, 41. Author points to contributions of science in production and refining; he also recalls dire prophecies of 1918.

Distillate Production Corporation of Houston Completes Its New Cycling Plant Designed for Obtaining High Percentage of Propane and Butane—E. H. Short, Jr. "Oil and Gas Journal," March 16, 1944, pp. 67, etc. High recovery of butane and propane from cycled gases in the Houston-Fairbanks area is the goal and achievement of this plant. The unitization plan is directed by a committee of three. Plant is now processing 53 million cu. ft. of gas per day containing about 2% propane, 1% butane and about 2% pentanes and heavier. Recent tests show 93% butane recovery.

A.P.I. Announces Annual Petroleum Reserves Figures. "Oil Weekly," Feb. 28, 1944, pp. 14, 15. Comparatively encouraging report shows U.S. proved reserves drop only 18,000,000 bbls. in year to 20,064,152,000 bbls. Discovery rate of new oil, however, continues downward.

Measuring the Flow of Fluids—W. Goodman. "Heating, Piping and Air Conditioning," Feb., 1944, pp. 80-82. Article 7 and last. In this article the author discusses the construction of a single tube manometer and its manipulation.

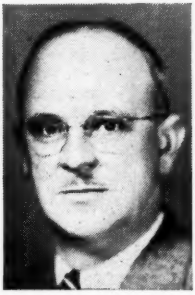
Liquid Densities of Eleven Hydrocarbons Found in Commercial C_4 Mixtures. Compiled by C. S. Oragoe. Letter Circular LC-736, U. S. Bureau of Standards. The eleven hydrocarbons are: propane, propene, n-butane, isobutane, 1-butene, cis-2-butene, trans-2-butene, iso-butene, 1, 3-butadiene, n-pentane and iso-pentane, and the temperature range is from —50° to +140° F.

List of Inspected Fire Protection Equipment and Materials, January, 1944. Published by the Underwriters' Laboratories, Inc.

THE TRADE

General Controls Co., Glendale, Calif., in line with plans for strengthening field distribution and service

L. E. WETZEL



WM. MARSH

facilities, recently occupied new branch office quarters at 687 Boylston St., Boston 6, Mass., and at 1505 Broadway, Cleveland, Ohio.

General Controls' Boston Branch is under the direction of Branch Manager William Marsh, a native New Englander, who has had 20 years' experience in the automatic controls industry. He has been instrumental in the development of numerous controls for both the gas field and sectional control applications.

L. E. (Rusty) Wetzel, Cleveland branch manager, is a native of that city, a graduate of Purdue and John Huntington Institute Technical College where he majored in air conditioning, heating and ventilating engineering. His field experience covers 16 years in the refrigeration and general installation fields.

General Controls Co. are manufacturers and distributors of pressure temperature and flow controls, and on March 29 were awarded the Army-Navy "E" for excellence in producing automatic controls for aircraft and ordnance. The award was accepted by W. A. Ray, president and chief engineer of the company.

Southern Gas & Equipment Co., which has maintained two offices in the past, has consolidated the Fort Smith, Ark., one with the main office in Tulsa, Okla. Warehouse facilities have also been moved.

The Tulsa headquarters are at 618 Merchants Bank Bldg. Frank De Larzalere is president and H. H. Jennings is general manager of the company, distributors of LP-gas equipment.

Tappan Stove Co.'s elaborate 1944 portfolio is now in the hands of the firm's representatives for presentation to dealers and prospects. Twenty-four pages of text and illustration tell the Tappan story—the history of advertising; reprints of current national magazine advertising, featuring the sophisticated pen-and-ink drawings of Manhattan's Eric Mulvaney depicting the early modes of cooking; sales training and kitchen planning programs and the research now being done anticipating postwar ranges.

If you have not seen a copy of the booklet, you can obtain one by writing to The Tappan Stove Co., Mansfield, Ohio.

Geo. D. Roper Corp., Rockford, Ill., has been signally honored for the third time by the army and navy for

continued high standards of war production.

In March, 1943, the Roper organization received the original Army-Navy production award. This was followed in September by the first White Star, and now by the second White Star award.

Peace time manufacturer of Roper gas ranges and Roper pumps for all purposes, since the start of the war, the Roper organization has concentrated its manufacturing activities upon 75mm. and 3-in. projectives, aircraft landing gear, pumps for almost every type of naval vessels, pumps for the maritime commission, foundry castings for many essential war purposes and other vital war products.

Since Jan. 1, 1944, Roper has also manufactured a gas range built under authority of the War Production Board and sold in step with the OPA stove rationing program.

The Bastian-Blessing Co., Chicago, announces that its employes have won for the second time the Army-Navy Production Award for meritorious services on the production front. The award was conferred by Under Secretary of War Robert P. Patterson.

The Bastian-Blessing Co. has been fortunate in receiving a number of war contracts for equipment and parts requiring the same machines as those used in making its peactime lines of liquefied petroleum gas pressure regulating equipment. This will make it possible to reconvert quickly to peacetime lines when the time comes, company officials state.

The Florence Stove Co., of Gardner, Mass., has moved its New York office to No. One Park Ave., as one step in its extensive plans for postwar expansion.

The new and larger quarters in-

clude, in addition to the office, modern display rooms for Florence ranges and heaters.

For 25 years Florence has maintained an office in New York as headquarters for the New York sales division, covering an area from Connecticut to North Carolina and west to Ohio. This division is managed by R. H. Taylor, who has been with Florence a number of years.

D. L. Edelmuth, vice-president of the Cleveland Co-Operative Stove Co., has announced the creation of a new division to be known as the Cleveland Distributing Co. The organization will distribute household appliances and radios in the Cleveland wholesale area of 21 counties.

R. E. SARGENT

Cleveland Distributing will, of course, handle the Grand line, which is manufactured by the Grand Home Appliance Co., another division of Cleveland Co-Operative Stove Co. Offices, showroom, and warehouse are at 2323 East 67th St., Cleveland, Ohio.

Roger E. Sargent, who for 25 years has been in sales executive posts in this area, has been appointed general manager of the new organization.

WPB Again Allows Storage Compartments in Stoves

The War Production Board acted April 19 to restore domestic cooking stoves more nearly to their pre-war appearance.

By the new ruling storage compartments may again be included in them.

Mrs. Virginia Hart, Kitchen Consultant, Joins Servel

The appointment of Mrs. Virginia Hart as kitchen planning consultant to advertising and sales promotion department of Servel, Inc., Evansville, Ind., was made recently by R. J. Canniff, manager of Servel's advertising and sales promotion department.

VIRGINIA HART

Mrs. Hart, one of the nation's foremost kitchen designers, began her planning activities while connected with the New York offices of the Kitchen Maid Corp. in 1930. Her original connection with the gas industry came in 1933 when she edited "Modern Kitchens, A Handbook of Design and Construction" for the American Gas Association. In that same year Mrs. Hart designed and organized the kitchen headquarters for the Philadelphia Gas Works. From 1934 to 1936 she was connected with the Consolidated Gas Co., of New York, while organizing their kitchen planning service.

From 1937 to 1942 she was the associate editor of "House and Garden," in charge of home equipment.

WBP Relaxes Rules for Water Heater Metal Jackets

Prohibition on the use of metal jackets for water heaters has been relaxed to permit use of steel in manufacturing inventories and such steel as may be obtained from frozen, idle and excess inventories.

The ruling was issued on May 8 by the War Production Board.

How To Operate Fire Extinguishers

THE speed with which an employe* uses an extinguisher to attack an incipient fire often makes the difference between an incident and a disaster. Therefore fire protection authorities recommend that periodic fire extinguisher demonstrations be held to teach plant personnel the simple but important rules for operating extinguishers. If demonstrations are too difficult to arrange, this information can be conveyed by means of wall posters, articles in company papers or oral instructions by foremen.

Below are step-by-step directions for operating the different kinds of approved hand extinguishers:

Soda-acid and *foam* extinguishers are usually hung on wall hangers or set on brackets or shelves. Take the hose between the thumb and index finger of the right hand and grasp the ring-top handle. Then with the left hand lift the extinguisher off the hook and lower it, keeping the extinguisher in an upright position. Carry the extinguisher to the fire by means of the ring top handle held in the right hand, still maintaining a hold on the hoze nozzle.

Method of Handling

To set the extinguisher in operation, grasp the bottom handle with the left hand and turn the extinguisher upside down. Release the ring top handle, but continue holding the hose in right hand to direct stream.

Gas cartridge and *loaded stream* extinguishers closely resemble soda-acid and foam types and are operated in much the same way. When these types are inverted, they must be bumped on the ground to rupture the carbon dioxide cartridge that supplies the pressure to expel the stream.

Vaporizing liquid extingushers of the pump-gun type generally are suspended in wall brackets. Remove the extinguisher by grasping the handle in the right hand and pulling outward. Hold the nozzle end in the left hand with the index and middle finger straddling the nozzle tip. On the way to the fire, twist the handle to unlock it and, if the device is of the air pump type, move the index finger over the nozzle tip and pump up pressure. To expel the stream, move

* This article prepared by Safety Research Institute, Inc., New York City.

the index finger back and pump steadily and vigorously with the right hand.

Larger sizes—1, 2 and 3-gallon capacity—are sometimes provided for special use. They are carried to the fire by the handle at the top and operated by hand pump or by stored pressure. To operate the pump type, rest it on the floor, and pump with the left hand while aiming the hose stream with the right. The stored pressure type is operated by opening the valve provided on the head castings, while the right hand holds the hoze nozzle.

Carbon dioxide extinguishers are carried to the fire with the left hand, by the handle provided for the purpose. To operate, rest the extinguisher on the ground, pull the locking pin out, take the horn-like nozzle in the right hand, and turn the valve counter-clockwise with the left to release the gas.

Pump tank extinguishers are carried to the fire by means of the top handle. The pump is operated by the left hand, while the right hand aims the hose stream.

"How to Fight Different Kinds of Fires" will be published next month. The first of this series of three articles on fires and fire equipment appeared in the May issue of BUTANE-PROPANE *News*, **page 93.**

Amendment Issued To ODT Order 18 A-3

Amendment 1 to Special Direction ODT 18 A-3 provides that in addition to the loading requirements for carload freight previously established under the direction, such cars may be loaded as permitted in any special direction or general permit under ODT 18A.

This amendment was published April 25.

Order L-79, Plumbing and Heating Equipment, Amended

Interpretation 3 to the plumbing and heating equipment order, No. L-79, issued April 13, states that the restrictions of paragraph (f) (3) of L-79 bar the substitution of one type of heating system for another (for example, cast iron heating boiler for heating furnace) if such substitution would require the change of a useable distribution system.

This was followed on April 25 with an amended L-79. The revision of the controlling order contains a statement directing attention to the fact that deliveries for certain parts for plumbing and heating equipment are also subject to applicable provisions of other limitation orders.

Paragraph (b) has been amended in sub-section (3) by adding the names of items and priority order numbers to the list of items for which ratings cannot be used to get equipment specifically designed for industrial processing and for heat exchangers subject to L-123, domestic water systems covered by L-257, liquefied petroleum gas equipment defined in L-86, fans and blowers and exhausters as covered by L-123 except those on List A of L-79, industrial and domestic sump pumps, portable items such as pans, domestic stove lid lifters and domestic stove pokers.

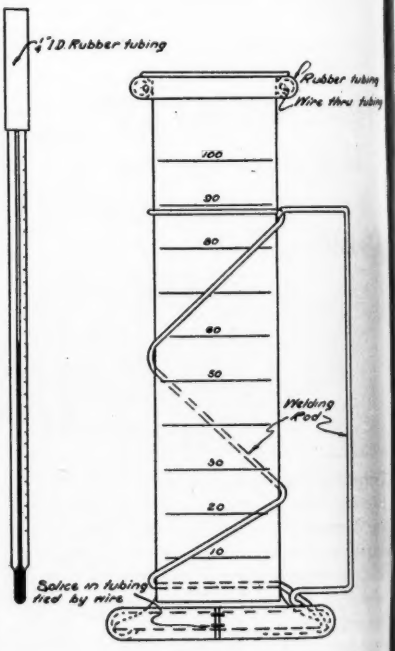
Paragraph (g) retains the previous first sentence. The second sentence has been revised to provide that applications on WPB-1319 should be made to the nearest WPB field office. Definition of "seller" has been changed to clarify the position of manufacturers who sell directly to consumers. They are to be considered sellers with respect to such sales.

Glass Protector

• ANNUALLY since 1936, conventions of the Natural Gasoline Association of America have devoted one portion of every program to the exhibition and discussion of original operating ideas which have been developed by members for doing any job within their province in a cheaper, safer or more efficient way. Cash prizes are awarded for "kinks" judged the best.

One of the prize winners in the past was H. C. Hunter, plant chemist, Skelly Oil Co., Lyman, Okla. His entry was a graduate and thermometer protector, which is described in the accompanying article.—Editor.

A SAVING of from $10 to $20 per year in glassware expense has been effected where this protector has been used for handling propane sam-



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P. S.: Don't Forget Old Frank and Henri

THOMAS Cylinder Truck Saves Men, Time and Lawns

- ALSO FOR STOVES, BOXES, CRATES
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An all purpose, one man truck for moving both cylinders and appliances. No more back-breaking lifting, either. Tapered body gives operator ample room between handles. Cradle construction accommodates any size cylinder up to 100 pound capacity. Wide Bottom flanges give support for appliances. Web strap (optional) holds appliance rigidly. Rounded handle grips permit skidding from end of delivery truck. Time saving, labor saving, cost cutting. Available now.

Write for prices and folder.

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ples; and furthermore, the protector safeguards operators against the danger of blistering their hands. In weathering the overhead product, for tower control, this apparatus has been used for quite a while by the inventor. The handle on the graduate makes it possible to obtain samples with little danger of the product boiling over suddenly, burning the hands and causing the operator to drop and break both the graduate and the thermometer. By adding a rubber tubing protector at both top and bottom of the graduate, and by putting a short length of tubing on the end of the thermometer the apparatus, barring accidental dropping, is almost unbreakable. When not in use, it may be hung on a hook or convenient valve wheel close to the sample supply.

In laboratory bench work, by using only the top protector, the graduate seldom suffers from being bumped or tipped over and yet the view of the graduate is not obstructed. The only materials needed are rubber tubing and welding rod or suitable wire. Results are well worth the effort entailed in making this device.

Edward Falck Succeeds Krug as Director of OWU

Donald M. Nelson, chairman of the War Production Board, announced April 14 the appointment of Edward Falck as director of the Office of War Utilities. Mr. Falck succeeds J. A. Krug, who is leaving WPB to accept a commission as lieutenant commander in the navy for assignment to active duty.

Mr. Falck has been deputy director of the Office of War Utilities since February, 1943, and since March 17 of this year has also served as executive director of the Combined Production and Resources Board. He will continue to fill the latter post.

New Oklahoma City Law Affects LP-Gas Operators

An ordinance regulating the sale, installation, transportation, handling and inspection of liquefied petroleum gas within the limits of Oklahoma City, Okla., was adopted by the council of that city, April 25.

It re-enacts all existing rules and regulations applying to the state at large and enforceable by the state fire marshal and adds several new divisions giving city officials and the fire department of Oklahoma City regulatory and inspection powers they formerly did not possess.

The new ordinance was worked out by a special committee of the city council meeting in conjunction with 50 dealers and transporters of liquefied petroleum gas.

Quarterly Inspections Required

The ordinance provides for quarterly inspection by the Oklahoma City fire department of all tank trucks and trailers used in transportation and delivery of LP-Gas within the city limits and authorizes the levy of an initial inspection fee of $5, plus a quarter-annual inspection fee thereafter of $2.50. An additional inspection may be made at any other time deemed advisable by the fire chief for which $2.50 is assessed.

If the local delivery equipment is found to comply with terms of the ordinance, the city fire chief is required to issue a permit for its operation over streets and highways within the city. Tank trucks or trailers not licensed to make deliveries within the city are limited to the use of Eastern Avenue in passing the city, except in cases of emergency the city fire chief may designate other routes. For delivery within the city, tank trucks are limited to a maximum load of 1100 gals. The driver of such truck is required to have with him a cer-

tificate issued by the refinery which loaded it showing the amount of LP-Gas placed in the tank or tanks.

Many other important regulations are included in the ordinance, the terms of which should be obtained by all operators doing business in Oklahoma City or sending trucks through.

Installed Pressure Vessels Exempt from Price Control

Sales of used pressure vessels and enclosed atmospheric pressure vessels which are installed underground, and purchased for use in their present location, became exempt from price control after April 7, the Office of Price Administration has announced.

Those cylindrical vessels—or tanks—are generally used for storage of gasoline and other oil products.

Among the reasons given by OPA for exempting sales of the installed tanks from price control were:

(1) Regulations of the Petroleum Administration for War require an outgoing supplier to sell his equipment to incoming suppliers.

(2) In such a sale it is often difficult, if not impossible, to determine the maximum price for underground storage tanks according to provisions of OPA regulations. (That price depends on thickness, type, and kind of material in the tank, and its original cost—records of which are often not available.)

(3) Petroleum marketers have long had established prices covering such transfers, which are in general lower than maximum prices established under OPA regulations.

The exemption applies only to sales of vessels already installed and to be used in their present location. Sales of used vessels to be installed, or moved from their present location, will continue to be priced under present OPA regulations. If manufactured from black steel, they are priced under provisions of MPR—465—Used Pressure Vessels and Enclosed Atmospheric Pressure Vessels—and if manufactured from other materials, are governed by provisions of MPR 136—Machines and Parts.

LPGA Officers Re-Elected

LOUIS Abramson, Jr., of New Orleans, was reelected president of the Liquefied Petroleum Gas Association at the organization meeting of the new executive board of directors,

Reelected as officers of the LPGA are (left to right): Florence Jacob, New York City, secretary and treasurer; Harry K. Strickler, Erie, Pa., vice president; Louis Abramson, Jr., New Orleans, president. D. D. Purrington, San Francisco, is the other vice-president reelected.

held in late April at the Palmer House, Chicago.

Other officers reelected for another term are: Harry K. Strickler of Erie, Pa., and D. D. Purrington of San Francisco, vice presidents; and Florence Jacob, acting secretary and treasurer.

The board meeting was the first at which officers of the four sectional

groups were in attendance as ex-officio members of the group. These are: Eastern Section, P. A. Anderson, Portland, Me., chairman, and R. E. Forsberg, Suffern, N. Y., vice chairman; Southern Section, H. C. Pittman, Tyler, Texas, chairman, and Selwyn Turner, Mobile, Ala., vice chairman; Central (Midwest) Section, John L. Locke, St. Paul, chairman, and J. Richard Verkamp, Cincinnati, vice chairman; Pacific Coast Section, L. C. Roney, Los Angeles, chairman, and C. M. Ambrose, Seattle, vice chairman.

"Future of LP-Gas" Discussed At AGAEM Meeting

The annual meeting of the Association of Gas Appliance and Equipment Manufacturers was held in Chicago May 8-9.

One of the papers delivered before the convention that is of special interest to the LP-Gas industry was that of Frank Boice, Shell Oil Co., Inc., New York. His paper emphasized his belief that the LP-Gas industry will boom after the war because of

1. Improved selling techniques.
2. Improved appliances.
3. More distributors and retailers in business.
4. Increased public acceptance.

Mr. Boice believes that there will be ample supply of fuel after the war and that its distribution will be limited only by the number of appliances available for its use.

New officers of the AGAEM are: Lyle Harvey, Bryant Heater Co., president; Parky O'Keefe, O'Keefe & Merrit, 1st vice president; John Robertshaw, Robertshaw Thermostat Co., 2nd vice prseident; John Van Norden, American Meter Co., treasurer.

Harry Walker, Here from Spain Seeks New American Lines

An old and important garage and service station equipment firm in Spain will have a direct representative in the United States in June. Harry Walker, president of the Harry Walker Sociedad Anonima will be here and invites firms seeking distribution in Spain to personally talk with him.

The firm maintains a special department for repair and maintenance of equipment sold and aviation instruments. It also represents Irving Parachutes.

Those interested may communicate with him in care of Bolton and Mitchell, Inc., 79 Wall Street, New York 5, N. Y.

No War Certificates Needed While Rebuilding Vehicles

Dealers or repair shops need not obtain Certificates of War Necessity for the operation of commercial motor vehicles during their rebuilding or reconditioning, according to Amendment 1, ODT 21-2A, covering commercial motor vehicles. The amendment, effective at once, also covers such vehicles when being operated to, from or between rebuilding plants. Officials stated that arrangements had been made with OPA for issuance of special gasoline rations for such operations. These rations will be limited to 200 miles of travel unless ODT certifies otherwise.

The order was issued April 27.

Heating Stove Makers Must Quote Fall Dates

An announcement has been made by the Office of Price Administration to the effect that all manufacturers of domestic heating stoves must continue their pre-war practice in quoting fall datings and anticipation discounts of stoves.

Supply Men Elect Officers At NGAA Convention

The Natural Gasoline Supply Men's Association elected its new officers and board of directors during the April convention of the National Gasoline Association of America.

Officers are A. M. Buxton, Cooper-Bessemer Corp., president; F. J. Wetzel, Ingersoll-Rand Co., and R. E. Walker, American Rolling Mill Co., vice presidents, and John Heinzerling, Vinson Supply Co., treasurer. All are from Tulsa.

Directors elected to serve a 2-year term are: L. S. Allen, National Tank Co.; Roy Bush, Merco Nordstrom Valve Co.; L. D. McKay, Union Steam Pump Co., and Heinzerling, all of Tulsa, and H. M. Rosevear, Wyatt Metal Works, Dallas, Tex.

Col. J. M. Johnson Appointed Director of the ODT

Col. J. Monroe Johnson has been appointed by President Roosevelt as director of the Office of Defense Transportation, succeeding the late Jos. B. Eastman.

Col. Johnson is a member of the Interstate Commerce Commission and will probably retain this post as well as his new appointment.

Brig. Gen. Charles D. Young has been acting director of ODT since the passing of Mr. Eastman.

Southern Section, LPGA, Will Meet In September

The annual meeting of the Southern Section, LPGA, will not be held in June, as expected, but will occur in September, according to H. C. Pittman, sectional chairman.

The exact dates and meeting place will be announced as soon as decided upon.

Newsletter Will Inform Business Men of Surpluses

Inauguration on May 7 of a weekly Washington Newsletter on surplus U. S. Government war goods and property was announced recently to American business executives and corporations.

The Newsletter will give a weekly running account of the government's plans in offering surplus property and goods for sale. It will keep subscribers currently informed on all plans, policies, decisions and regulations bearing on the government's disposition of more than fifty billion of dollars worth of war goods.

The aim of the Newsletter is to offer a service not only to persons or corporations interested in purchasing surplus goods, but also to manufacturers and others whose business will be affected when the government unloads nearly a million items.

Welder working on one of the 1000-gal. L-P-Gas systems in the plant of Dallas Tank & Welding Co., Dallas, Texas.

CLASSIFIED

Classified advertising is set in 6-point type, without border or display, at the rate of 10 cents per word per insertion; minimum charge per insertion $2. Box numbers for replies count as 5 words. Count as a word each one letter word and each group of figures. Classified advertising is only accepted when payment accompanies order. Copy and payment must reach publisher's office prior to 10th of month preceding publication.

EQUIPMENT WANTED

WANTED — ONE 2500 TO 3000 GALLON tank semi-trailer for Butane. Schaefer Bros., Box 835, Cortez, Colorado.

WANTED TO BUY—A PROPANE TANK truck, new or used. Must be in perfect condition. Box 280, BUTANE-PROPANE News, 1709 W. 8th St., Los Angeles 14, Calif.

WANTED—PROPANE CYLINDERS, PREfer 100-lb. size. Barnesville Development Co., Barnesville, Ohio.

EQUIPMENT FOR SALE

TWO 5000 CUBIC FEET PER HOUR GAS-AIR machines. No priority required. Write James Graham Mfg. Company, Newark, Calif.

New Hawkins, Texas, Natural Gasoline Plant in Operation

Its present production required to meet the war needs of the nation, the new Hawkins, Texas, natural gasoline plant is being put into operation, according to announcement made by Warren Petroleum Corp.

Owned jointly by Natural Gasoline Corp., a Warren subsidiary, and Humble Oil & Refining Co., this modern plant will manufacture various grades of natural gasoline, isopentane, isobutane, normal butane and propane.

The plant will be operated by Natural Gasoline Corp.; the output will be marketed by Warren Petroleum Corp.

S. C. Vanier Elected President Of N. W. Water Heater Men

At its regular monthly meeting held on May 5, the Northwest Water Heater Manufacturers Association elected S. C. Vanier, northwest division manager, General Water Heater Corp., president of the association for the term of one year. Mr. Vanier succeeds Jimmy Wilkerson, deceased.

M. Lannes, representative of Hoyt Water Heater Co., was elected secretary to succeed Chas. Nicholas, Crane Co., whose term expired.

A resolution was unanimously passed providing for members of the association to conform to minimum and maximum water heater guarantees as may be set forth by the Federal Trades Commission.

Repairs Must Not Conflict With Existing WPB Orders

Repairmen are permitted to use up to $25 worth of material purchased under Controlled Materials Plan Regulation No. 9A for the installation of cooking, plumbing, heating, or used air conditioning or refrigeration equipment only on condition that use of such material is not otherwise prohibited by WPB rules and orders.

This explanation came from the War Production Board in May.

ODT Order Requires Commercial Tire Inspection

The Office of Defense Transportation April 18 reminded operators of all types of commercial motor vehicles that they are still required to have their tires inspected periodically under ODT orders, although the Office of Price Administration has lifted the requirement for passenger care tire inspection, effective April 20.

Under General Order ODT 21, as amended, operators of trucks, buses and taxicabs must have their tires checked after each 5000 miles of operation, or every six months of operation if less than 5000 miles. Inspections are made by any agency designated by the OPA.

March Production of LP-Gas Increased Over February

The March production of LP-Gas showed a total of 21,000,000 gals. of isobutane as against 18,438,000 gals. in February, according to the latest Bureau of Mines report.

Stocks were also up to 50,538,000 gals. In February they were 43,512,000 gals. The March demand for LP-Gas went to 38,724,000 gals. from 43,848,000 gals. the month before.

Gases for fuel showed 41,916,000 gals., and those exported and plant losses totaled 56,364,000 over 61,446,000 in the same relative period.

Cooking, Heating Appliance Group Will Meet June 7-9

The mid-year meeting of the Institute of Cooking and Heating Appliance Manufacturers will be held June 7-9 at the Netherland Plaza Hotel, Cincinnati.

The principal theme for discussion will be government-industry relations, regarding which Wade T. Childress, WPB deputy vice chairman, will deliver the principal talk.

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